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# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

Effingham House,

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Mr. Arthur Bonfield, M.A. F.R.I.B.A. 1880-1900 feet.
The Episcopal Palace, Wells, Somersetshire. View from the north, with a sketch plan drawn by Mr. Maurice B. Adams, F.R.I.B.A.
"Pandora." Royal Academy Silver Medal Prize Cartoon for a Draped Figure. By Mrs. Dorothy Fraser Litchfield.
Messrs. Lloyd and Company's Bank, Durham. Elevations, plans, and section. Mr. John G. Burrell, Licentiate R.I.B.A., Architect.
Danvers Red Cross Hospital, near Swansea, and an Open-air Hospital Ward. Views, plan, and section. Mr. Glendinning Moxham, F.R.I.B.A., Architect.

### FAS EST AB HOSTE DOCERI.

Have we all learnt any lessons from the foe? It seems sometimes but yesterday since, a year ago, on this page, when the burden of the war was comparatively new and light, that we hoped that ere 1915 had run its course Peace might have returned, and urged on all the necessity meanwhile of doing, each one of us, our full share of bringing the war to an end in our new spheres of duty. The months have passed, and week by week the burden has grown heavier, and some of us have said one to the other:

We live in deeds, not years; in thoughts, not breaths;  
In feelings, not in figures on a dial.  
We should count time by heart-throbs.

All of us have felt that for the time our reckoning thereof was of other sort than that of the former years, when dates of mere routine cares and ordinary joys and sorrows marked the calendar with their daily record of ease or pain, of success or failure. And few of us to-day we believe, hardly as bereavement and loss may have visited us, have failed to realise that, after all, nothing must be grudged or sorrowed for unduly while the great struggle lasts which could not but overwhelm any lacking the unshakable conviction that we and our kith and kin all the world over are waging it against the powers of reaction and tyranny; and that final victory alone must end it, if the battle takes us and those that are to follow us a century to fight to a finish.

We have few fears on that score. What we want to feel sure of at the beginning of this new year is that we are all equally alive to the absolute necessity of making certain, while abating no jot of our energy in the prosecution of the war, that peace shall not lull us into the neglect of the work of preparation which gave the enemy his not undeserved advantage at first over us and our Allies. If ever again we leave it barely possible for any enemy to start with so much as one poor ounce of advantage, lost by our apathy or by the ignorance or blindness of our rulers, we shall richly deserve our fate. We shall still more righteously deserve to be distanced by Germany in the struggle her professors and her traders will at once resume to beat us in the fields of art and scientific research and in the world's markets, if we do not at once see to it that no Government shall be possible in these islands that fails to recognise that its first duty is to enforce the organisation and accept and foster the co-operation of every calling and industry. What we have started to do—late as it was—in regard to the war must be continued, and without intermission, during however long a peace. The native patron, government, committee, or commercial

undertaking that buys of alien producers while it is possible to buy of Englishmen, or to qualify them or their fellow-Britons of the Empire to supply that which is needed, must be as sternly restrained as the traitor who to-day would sell his country for the sake of a good bargain.

If after Peace is made it takes us as long to realise this as it took the Government to wake up to the dire need for the efforts it at last made to avail itself of the brains and sinews of its citizens we may as well throw up the sponge at once, and fall back into our place among the mere trading nations like Holland, and let Germany or some other imperial State take the van in the world's march of progress. If we are not individually and collectively sure about this, then all mere individual effort to qualify ourselves and insist that the Government shall foster and recognise our qualifications will be futile. In peace as in war voluntary enlistment is all very well, but voluntary enlistment that has to strive through subsequent months or years to secure efficiency is at the best a very costly, and at the worst may prove useless, preparation. We believe still in the voluntary principle, if wise and compulsory previous efficiency, or capability of efficiency, is made compulsory. Without that conscription of the unwilling and the unfit will not help us much.

It is no vain boast to say that of all who responded to the call of patriotism none did so in proportionately greater numbers than the members of our own calling who joined the colours. It is equally true that none have more successively tendered their services in other capacities to the State. The work done by the Architects' War Committee is something, indeed, to be proud of. We trust its activities will not cease when peace comes, but that in connection with the R.I.B.A., or, better still, with the amalgamation of all architects into that body we still hope to see brought about, it will avail itself, as a permanent adjunct, of a long continuance of such good work as its honorary secretary, Mr. Stanley Peach, has put in since the war began, and develop and perfect the co-ordination of ever-ready, available help to the State, now in quiet but most creditable progress. It will not then take any future Government department quite as long as it did the War Office this year to learn that such help was ready and willing.

If any deem our New Year appeal quixotic, our excuse must be our deep conviction of the inexpressible value of the co-operation of architects. Through our past hundred and nine volumes evidence of that has never been more gratifyingly visible than during the past year. Bad as things have been for many of us,

it is a source of much encouragement to us, as it must have been of gratification to our readers, that they have had the best fruit of the genius of their foremost fellow-architects at the earliest possible season. For any shortcomings of our own, the not inconsiderable sacrifice we have made to second the good help we enjoy may, we trust, be accepted. That next year may find all of us better able to render and utilise the best possible mutual service we can for the common advantage is our earnest New Year's wish to all.

### RED CROSS TRAINS, AMBULANCE CARS AND HOSPITAL SHIPS.

The transport of wounded from the field of battle to the final hospital proceeds as follows:—The fallen soldier is conveyed by regimental stretcher-bearers to the regimental dressing-station, either at dusk or dawn. Field ambulances call at regimental dressing-stations at night and dawn, if busy, and convey sick and wounded to the field hospital by horse or motor ambulance. All casualties are sent by motor convoy to clearing hospitals at rail-head, excepting a few minor cases, which are despatched to convalescent homes in the rear of the field hospitals—that is, within about 20 miles. At the clearing hospitals casualties are sorted, and, after a night's rest, put on board Red Cross trains for the base hospital. Dangerous cases are kept until fit to travel to England, the remainder being detained as little as possible. The Red Cross trains run alongside the hospital ships, where casualties are told off to various hospitals in England, where they are detained or granted sick leave. At all medical stations from firing line to base casualties are treated. The means of conveying wounded are, therefore, horse or motor ambulance cars, Red Cross trains, and hospital ships. The ambulance car is frequently extemporised, but preferably consists of a well-sprung, smooth-running, high-powered car, where in arrangements are made or improvised for the "stretcher cases." Essentially, therefore, a motor ambulance is a mere shell-like waggon, having frames wherein the stretchers may be at once placed by the bearers or attendants. The usual accommodation is for four wounded "lying-down" cases, and space is needed for bearer attendants and perhaps nurses. The bearers are often accommodated by the side of the driver, hence a greater width of driver's seating is advantageous. The car is often covered with waterproof canvas roof on suitable framing, and the more roomy the car accommodation the better. The arrangements for the stretchers are comprised in suitable wooden framings and posts, all made com-

veniently suitable for the receipt of stretchers, which fit into planned positions, and are there quickly strapped. An obvious essential in such cars is a well-balanced engine, so that as little vibration as possible may be communicated through

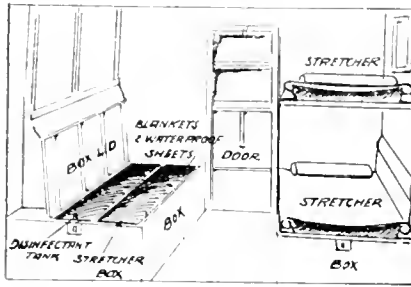


FIG. 1.

the car framing to the invalided and wounded. Of course, ambulance cars should have a suitable warning bell. In one instance we observed only this week, the vehicle and its burden disappeared amid loud and discordant noises from its whistle or syren.

Fig. 1 shows a special ambulance car recently built by the Wolsey Motors, Limited, Adderley Park, Birmingham, for the British Ambulance Committee on the Service de Santé Militaire. It comprises, it will be seen, special boxes for containing blankets and waterproof sheets, stretchers, and disinfected tank. The stretchers when laid are kept free of the box top by suspension from brackets, as indicated.

The ambulance train is essentially a long-distance corridor train, with a kitchen and nurses' quarters, lavatory accommodation, etc. In some case operations are required to be performed on board, accommodation being found for this purpose. Many Red Cross trains are converted stock, but others have been built for the purpose, the coaches being specially designed to secure comfort. Fig. 2 roughly in-

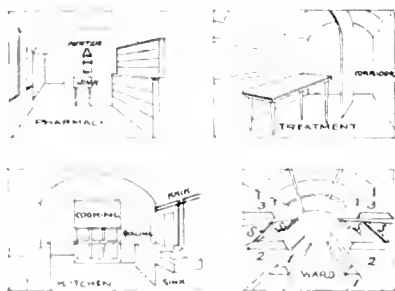


FIG. 2.

dicates some of the provisions made. A pharmacy room, as indicated, is a feature in these trains, and the sketch indicates one fitted up in a Red Cross train built by the London and North-Western Railway Company for Continental service. The apparatus for heating medical appliances, towels, etc., is shown, above a convenient sink, the cupboards for the various medicines, etc., being arranged to the side, allowing sufficient space beyond for the thoroughfare corridor. A room of this nature is a necessity in ambulance trains, so that, what with kitchen, dining-car, officers', men's, orderlies', doctors', and guards' accommodation, the ordinary length embraces sixteen coaches. The treatment room, also indispensable, is shown in a further outline sketch in Fig. 2, being a part of the accommodation provided in a fine train built by the Lancashire and Yorkshire Railway Company. Necessarily, in planning a Red

Cross train, the corridor, needing to run from end to end, modifies the arrangements of the whole—becomes a factor influencing the disposition of each compartment, excepting in such cases as where the ward or other compartment forms the thoroughfare, as in the case of the ward car sketched, which is part of an L.N.W.R. train. The kitchen arrangements of an L. and Y. coach are shown in another sketch Fig. 2—and include three gas-cookers and a boiling-pan, with, conveniently to one side, sink and draining-board, and hot and cold water supply pipes, in its way as handy and fully-equipped an arrangement as in a non-locomotive establishment.

A common method of arranging a three-tier coach for lying-down cases found in the latest type of Red Cross train is sketched in diagram A, Fig. 3, where the two drawings show how the berths are arranged for lying down throughout the ward, and, again, where the middle tier is tilted back so that the occupants of the lowermost tier and the middle tier find comfortable sitting and reclining accommodation. The lowermost beds being supported directly from the floor, the middle

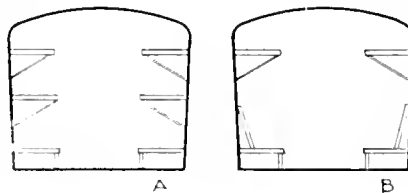


FIG. 3.

and upper tier find bearing from the tubular bracket supports, roughly sketched in B, Fig. 3. These sketches give in outline some of the features peculiar to the corridor trains for wounded. Fig. 2 also shows, roughly, the stays, SS, that support upper cots, of the several tiers, of the ward car, 1, 2, and 3.

Among the many fine trains provided by railway companies from funds provided by the charitable was the one built by the London and North-Western Railway Company. The train was destined for service on the Continent, and is in every way remarkable for its care in details, even cor-

perature may be established for each case, individually. These in conjunction with portable electric fans distributed about the ward-cars render the heating and ventilation highly effective. The whole arrangement of this train tends to comfort of wounded, ease of supervision and service. In this case, the kitchen and mess-room car included accommodation for field-officers' kits, a longitudinally arranged mess-room, and large kitchen with refrigerator and boiling racks. Water supply on these trains is a matter of urgency, and some trains have as much as 2,000 gallons storage. In the L.N.W.R. train the stove supplies 50 gallons of hot-water at all times, or large quantities of soup, etc. A staff-car is reserved at one end for doctors, and at the other end for nurses. In the nurses' car there are two beds in each compartment. The lighting of this train is very complete, the dynamos actuating effectively at 10 miles speed per hour.

The train, built by the Lancashire and Yorkshire Railway Company, of which the kitchen arrangements are shown in our sketch, Fig. 3, comprises sixteen bogie carriages, and is of a total length of 989 ft. 7 ins. over the buffers, and, although in this case the vehicles employed were withdrawn from the ordinary service stock of the company, every detail of arrangement is as complete as though special provision had been made—new coaches specially designed. The train has the ordinary L. and Y.R. elliptical roof, as indicated in our sketch of the kitchen. The train is now in service abroad. It comprises one brake-van, with stores and guard's accommodation; one kitchen-car for three cooks; four ward-cars, with accommodation for 144 lying-down cases; one pharmacy-car, treatment-room, office, and stores; one staff-car, and accommodation for nurses and officers; four ward-cars for sitting-up cases, and arrangements for sixty-four infectious cases; and one orderly-car for thirty-two persons, and one brake-van, two infectious wards, and beds for eighteen infectious lying-down cases. Some 530 persons are accommodated on this train. The ventilation is by electric fans, the whole train being lighted by electricity. A thoughtful provision is the arrangement whereby port-

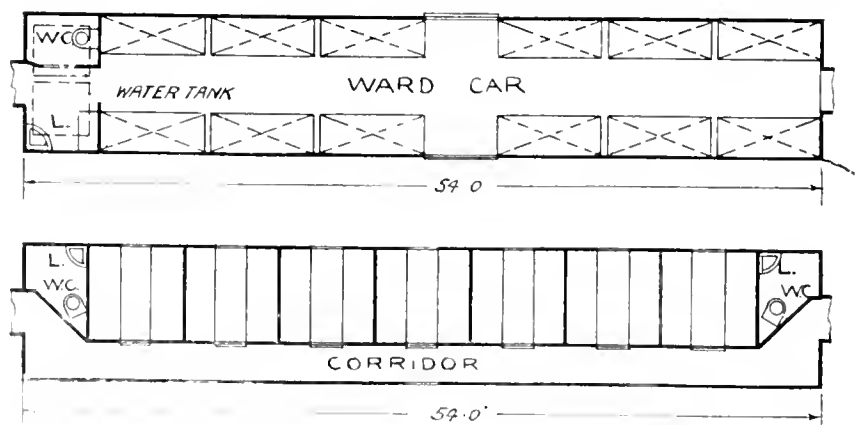


FIG. 4.

ners being rounded to prevent accumulation of dust, on the hospital method, and the ward coaches having double doors, so that stretcher cases could be more readily dealt with, for removal by the special stretcher-bearer attendants. The bedsteads in the wards were here of the folding type, as indicated in the sketches given Fig. 3, A, B. A careful provision is found in this train. Under each bed-tier are heaters, so that quite a local tem-

able fans may be fitted to any bed for special treatment and temperature control. The beds, as now usual in the Red Cross trains in service on our own lines and on the Continent, are in three tiers, and can be placed against the car sides when not in use, substantially as shown in our sketch of the L.N.W.R. train, Fig. 3. The kitchen accommodation comprises standard army ranges, supplied by the London Warming and Ventilating Com-



pany, Limited. This train carries a full 2,000 gallons of stored water, and has a constant supply of 50 gallons of hot water in each kitchen. In the heating of Red Cross trains the locomotive is an obvious ready recourse, but, although this method is generally adopted, as a rule independent means are also provided, as in the train here described. The train comprises four ward-cars, with thirty-six beds or cots for lying-down cases; one pharmacy-car; one staff-car; one personnel-car, accommodating twenty-eight orderlies; and two kitchen-cars, fitted up as our rough sketch in Fig. 3 indicates.

Necessarily, all ambulance trains are not made up on the elaborate methods detailed in the very complete examples

mess-room tables fold up, leaving a convenient room. The three beds for the cooks are superimposed. At the end of this car is provision for field officers' kits. This is a long coach 57 ft. over all.

Fig. 6 shows an ambulance coach provided by the Glasgow and South-Western Railway. It measures 44 ft. 3 ins. by 8 ft. 6 ins. wide over all. The car is built to be intercommunicable and run over all railway systems. The beds, or cots, as they are more usually termed, are 6 ft. 6 ins. by 2 ft. 6 ins., having spring and hair mattress, and all securely fixed to the coach floor.

The arrangement is very different from that in the trains above described, as shown by our outline sketch, where the single-bed

## THE EPISCOPAL PALACE AT WELLS SOMERSETSHIRE.

WITH ILLUSTRATIONS.

In many ways Wells is unique among the cathedrals of England, and its situation is unsurpassed. Its towers feature the topography of the west front, an ideal scheme of mural sculpture identified with the history, cemetery, or garth, fronting the cathedral, where the dead of the chapter and the remains of the regular clergy for many generations were laid to rest. There is no great doorway in this façade, because no common western approach to the church was intended, traversing this ancient "God's acre." Another speciality is the notable pleasure of the Bishop's Palace, among the trees to the south of Bishop Bubwith's beautiful cloisters, erected during the reign of Henry IV., V., and VI., the western parts being due to the munificence of Bishop Beckington. In architectural interest this residence has very few competitors, and this is due to Bishop Joceline's exquisite Mediæval work, which chiefly forms the earlier parts of the existing structure, dating from A.D. 1205-1244. Beside the Palace there are several charming domestic buildings, including such features as the Gate Houses, the "Vicars' Close," the Deanery, the Old Guildhall, the Abbot's Barn, and the Almshouses, all of which combine to make Wells one of the most interesting cities in Europe.

The great hall belonging to the Palace ranked among the finest of the Middle Ages, not excepting the familiar Edwardian hall at Westminster. This building now is a ruin, though sufficient remains to give a good idea of its scale and splendid structure. Originally the series of buildings joining the Palace were grouped round a spacious quadrangle, of which the part at present used as the Bishop's residence furnished the eastern side. Bishop Burnell's domestic chapel stands towards the south, between this wing and the end of the great hall, as the accompanying sketch block plan indicates. During the reign of Edward I. Bishop Burnell added this hall when he held office as Lord High Treasurer, Lord Chancellor, and Lord President of Wales. He also erected Acton Burnell, a noble mansion in Shropshire, where he entertained the King. The chapel at Wells, mostly due to his genius and enterprise, likewise owes additional interest to the clever adaptation of materials and details from Bishop Joceline's earlier chapel, parts of which were retained. The groining and elegant windows are attributed to Burnell, but the west window is certainly much later. The building is usually described as of the Middle Pointed or Decorated period in style. The moat, or circumvallation, was formed by Bishop Ralph de Salopia, with "half-moons," after the manner of quasi-fortifications, and the purpose of the conduits and running water courses was to relieve the cathedral from "such plenty of water issuing from under the church."

Towards the north of the quad, on the margin of the island site, long ago reclaimed from an ancient swamp, are the offices, with an enclosed yard, all very much altered and added to in rather a promiscuous fashion, ranging picturesquely along by the moat, as seen in the accompanying sketch. Bishop Montague spent much money and changed the altars and embrasures. Bishop Bagot concentrated attention on the administrative parts by rebuilding the kitchen. The oriels were thrown out by Bishop Clerk, who succeeded Wolsey and held office from 1523 to 1530. Changes were again made early in the 19th century by Bishop Beadon in the taste of his day. In 1840 Bishop Bagot added an upper story along the west front, which did not improve it. The dormers lighting three additional top rooms were introduced some years later by Benjamin Ferrey (1810-1880). Bishop Joceline's stair turrets were fortunately left intact, one having a fine vault and central pillar well worth mentioning.

The western boundary of the original quadrangle was occupied by a gatehouse long since demolished, but there is, or was a few years ago, a remnant extant of the ancient curtain wall connecting this structure with the other buildings. No direct evidence is actually obtainable at the present time about this

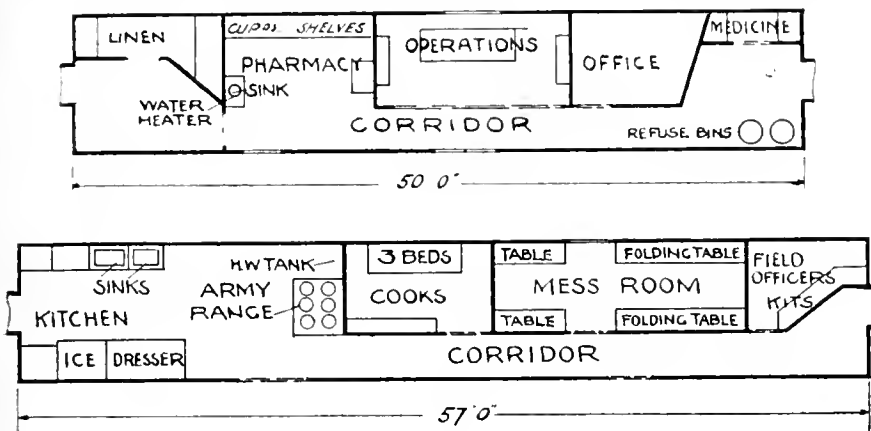


FIG. 5.

built for special long-distance service on the Continent. Here the runs of the trains are generally shorter, but where, as in some cases abroad, the wounded may be a day and a-half in the train the exigencies are more exacting, and the accommodation needs to be complete. The G.E.R. built a model train for service abroad. It is also a sixteen-coach train, and has five cars for sitting-up cases. It carries 2,000 gallons of water, nearly every car having a drinking-water tank, with locks to draw-off taps. This train, in the end stores-car, has a zinc-lined section, with complete arrangements for meat supplies; while one of the staff lavatories is equipped with a shower-bath. Diagrams Figs. 4 and 5 refer to the L.N.W.R. train described. Fig. 4 shows two ward-coaches, one for lying-down cases, and one where the patients are fit to sit upon couches. The first comprises thirty-six cots of the type described. At the end of the coach are w.c. and lavatory (L). The lower diagram shows a coach for fifty-six wounded, and has w.c. and lavatory at either end. Both cars are 54 ft. over-all, and 9 ft. wide.

Fig. 5 shows the pharmacy-car and a kitchen and mess-room car. The operations room has double doors conveniently arranged for entry of stretcher cases, and has shelving at either end. Adjoining is the pharmacy, shown also in the view Fig. 2. The car has an office, and at one end linen store and at the other a cupboard for medical comforts, while the end of corridor accommodates two refuse bins. It is to be observed that in the planning of ambulance trains, necessarily at times, as indeed in the lying-down wards, the apartment is a thoroughfare. This is so in the case of the pharmacy and the kitchen. Where possible the ordinary corridor is preserved, as in the case of the mess-room and cooks' room. The arrangements for cooking are sketched, and comprise a complete army pattern range, dresser, refrigerator, two sinks, draining board, and shelving. The

planning gives more the land hospital character, an impression emphasised by the generous floor area and the comfortable chairs. At one end of the coach a small dressing-room and lavatory are arranged, provided with hot and cold water lavatory basins, mirror and towel-rail, the lavatory, divided off from the dressing-room, forming a separate apartment. The wards are ventilated by eight side windows, with upper part sliding; and, in addition, are four special dust-shielded ventilators. The interior of this car has been painted in a pleasing white enamel. This special car is a useful type, that we would like to see copied for general use upon railways as

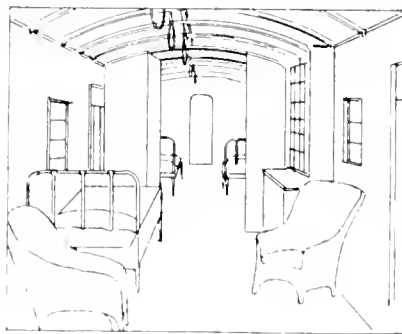


FIG. 6.

supplementary to the full complement of usual Red Cross ambulance cars.

The hospital ship is essentially an ordinary liner converted into an emergency hospital, and has provision for all services similarly to the Red Cross train. There are officers' and privates' wards, nurses' quarters, doctors' quarters, pharmacy department, and operating-rooms, all with special heating and ventilation and water supply. At nights these ships are distinguishable by a long row of green lights from stem to stern and three large red crosses, all brilliantly illuminated.

fourth side of the palatial enclosure, but it has been suggested that other houses of a corresponding consequence indicate the likelihood of this quadrangle having at one time been completed. Ferrey said that the exploration made in 1860 confirmed such an assumption. Buck's view of the Palace, made in 1700, is cited as showing a square tower to the west end of the north wing opposite the angle of the chapel, and this would have formed the corner of the quadrangle. Beckington is believed to have added a middle tower or gatehouse, and also built the conduit. The well-house, erected in the 15th century is another work of his connected with the supply of Wells with water, the springs of which never fail.

The Palace quad of Joceline's buildings had a cloister on three sides running into the present groined entrance-corridor or gallery, which forms part of the portion which is still architecturally perfect. The ground story of this building is pure Early English in style, exquisitely groined, and the vaulting ribs spring from slender shafts or from corbels on the walls. The beauty of this stage of the residential quarters is of the highest order. The principal apartments are located on the first floor, reached by a staircase of Jacobean character. The ceilings are modern of mid-Victorian type, like the fittings and the furniture. Whatever improvements may have been made of late years, the appointments in use were for many years very mediocre and uninteresting. Benjamin Ferrey was not answerable for these ceilings, or for other things of a like sort. The windows which he found bricked up are not modern, as some have asserted, but are genuine and original. Ferrey had them carefully opened out under his own supervision. The windows are particularly beautiful, and Ferrey, at any rate, saved them from destruction, though he may have over-restored their parts. They are situated on the first floor of the long range of building where the Bishop lives. The windows have side openings of two lights, which are trefoil-headed, with a quatrefoil over them in the tympanum. The inner or curtain arch of the wall is extremely refined in design, with elegant trefoils and handsomely moulded, the recesses having marble shafts in the jambs of the dining hall wall to which the series belongs. The original divisional walls of this part of the premises remain in situ, and above stairs these same walls carry on the structural fabric on similar lines, but the interspaces have been sub-divided by modern partitions to accommodate newer needs. The existing portions of the great hall comprise the N. W. and W. turrets and also the west wall.

The north front shown by the pen and ink drawing we give to-day, is somewhat of a medley of various periods by different hands, but, as a whole, it is charming, with its projecting set-offs and tower-like forms, marked by various places of entrance, odd-looking windows, conical roofs, and differing chimneys. Those who want to know more about the house will find its most accessible history in a little volume, "The Antiquities of Wells," by J. Henry Parker, published in 1866, and based upon his lecture before the Somersetshire Archaeological Society in 1862. When issued in book form further illustrations were added, drawn by C. A. Buckler, and engraved on the wood by Orlando Jewitt, including a good sketch of this north front by A. A. Clarke, and lithographed by J. R. Jobbins, all well known to our earlier readers as masters of the art of architectural illustration of their time. This north front then extended to the edge of the water's bank, and the somewhat dwarf-looking bay window as seen to-day rose structurally from a much lower level. Since Parker's day the present walk by the side of the palace has been formed, and, accordingly, the width of the moat was necessarily reduced. This alteration, of course, considerably changed the proportions of the whole façade by hiding up the basement walling behind the embankment and terraced walk.

The authorities of the British Museum in 1891 purchased, under the provisions of the "Farnborough Fund," a most interesting series of autograph sketches and measured drawings by the late Francis T. Dollman

(1812-1899), and the folio in which these records were bound up will be found marked E.G. 2.738, in the MS. Catalogue, dated 1894, under the title of "Wells and Its Precincts." These detail studies, however, include no drawings of importance in illustration of the Bishop's Palace, but at the end of the book will be found, in MS., an exhaustive and, so far, up to date list of the various papers, publications, and books having any particular reference to the historic buildings of Wells. This information appears to have been most carefully compiled by Dollman, accompanied by an index furnishing a concise statement as to where illustrations had appeared in various publications up to that time, though there is no allusion to the "Architectural Association Sketch Book," or to the professional journals.\* It may be useful to many to be reminded of this collection of signed, unpublished studies, and particularly so because the Museum Library only possesses the first volume; or, more correctly speaking, a selection of some of the earlier parts as issued, of F. T. Dollman's standard work: "An Analysis of Ancient Domestic Architecture in Great Britain." The second volume, therefore, is not available to the readers at the British Museum. That book contains a good deal of reliable information about the Bishop's Palace at Wells, more especially concerning its Domestic Chapel, of which several drawings are given.

MAURICE B. ADAMS

As reflected in the plans passed by the Dean of Guild Court, the building trade of Hamilton for the past year shows a big decrease upon that of previous years. The total estimated value of the plans submitted was £18,870, of which £14,000 was represented by additions to works. The valuation of plans in 1914 was £35,260; in 1913, £20,225; and in 1912, £41,700.

Mr. Edward Whitwell, M.S.A., the architect to the Abersychan Urban District Council, who has recently been elected a vice-president of the Institution of Municipal and County Engineers, has been awarded the President's Prize in that institution for his paper on "Housing of the Working Classes," read at the institution's annual meeting in November, 1914.

Among the recipients of New Year's honours is Sir Collingwood Schreiber, now K.C.M.G., the general consulting engineer to the Government of Canada and chief engineer of the Western Division of the National Transcontinental Railway. He was born in Essex in 1831. Mr. John Kennedy, who has received a knighthood, is the consulting engineer to the Montreal Harbour Commission, and Mr. William Brymer, president of the Royal Canadian Academy of Arts, has received the distinction of C.M.G., and Mr. John Norman Taylor, Public Works Department, officiating superintending engineer, Irrigation Branch, Upper Jhelum Canal, Punjab, that of C.I.E. Sir John Howard, of Brighton, who has been knighted at the age of eighty-four, carried out much work as an engineer and contractor, chiefly between 1860 and 1870, when he was responsible for carrying out many important works at home and abroad, including railways, waterworks, and docks. One of his last public works was the Brighton Palace Pier. Among his benefactions to Brighton is the Convalescent Home on the Downs, now in use as a military hospital, which cost over £40,000, and is being supplemented by a second home in memory of Nurse Edith Cavell.

\* The following illustrations of Wells Cathedral have appeared in the BUILDING NEWS during recent years:—Plan of Cathedral, Aug. 10, 1894; plan, and windows on north and south sides of dining-hall at the Palace, Aug. 8, 1899; plan, north-west tower and chain gate and exterior of southeast transept (Pugin drawings by S. K. Greenslade), June 10, 1891, July 20, 1888; Vicar's Close from roof of chapter-house (C. E. Mallows), July 19, 1899; entrance to Vicar's Close, a statue of a King from west front and interior of south transept, looking northwest (by C. E. Mallows), Aug. 20, 1894; plans and sketches of Vicar's Close and Chain Gate (M. B. Adams), July 20, 1883; college library, Vicar's Close (C. E. Mallows), Aug. 10, 1894; plan from south-east, over the Swan Pond (by Elizabeth Piper), Dec. 10, 1897; staircase to chapter-house, and interior of choir, east (C. E. Mallows), Aug. 17, 1894; chapter-house entrance, April 10, 1891; lecture given by Dean (afterwards Bishop) Creighton (by William Haywood), Sept. 2, 1898; entrance-gateway to Bishop's Palace, from moat (by Thomas Garratt), Aug. 17, 1894; bay windows of deanery, Jan. 30, 1885; and on April 7, 1899, a view of the Gate House and of the Abbot's Barn at Wells, sketched by W. Eaton, A.R.C.B.A.

## THE NEW MANITOBA PARLIAMENT BUILDINGS, WINNIPEG.

One of the largest public buildings now under construction in Canada is the Legislative and Executive Building in Winnipeg for the Province of Manitoba. Plans for the building were selected by competition open to all architects practising in the British Empire. Conditions for a preliminary competition were published in December, 1911, and sixty-seven sets of sketch plans were submitted in the spring of 1912, from which the designs of five competitors were selected for future competition, an honorarium of \$2,000 being paid to each for the preparation of final competition drawings.

Mr. Leonard Stokes, F.R.I.B.A., past president of the Royal Institute of British Architects, acted as assessor, and the five successful competitors in the preliminary competition were Mr. Frank W. Simon, Liverpool, England; E. and W. S. Maxwell, Montreal; Sharpe and Brown, Toronto; Brown and Vallance, Montreal; Clemesha and Portnall, Regina. The successful design in the final competition chosen by the assessor and confirmed by the Lieutenant-Governor in Council in the fall of 1912 was that of Mr. Frank W. Simon.

The first Parliament of Manitoba was held in 1871, but it was not until 1884 that the Legislative Building at present in use was erected at a cost of about \$285,000. The new Parliament Building is the latest of the modern legislative capitols to be erected in Canada. Its construction became necessary as a result of the inadequacy of the old building due to the rapid development of the province during the last decade.

Recent political changes have led to the supervision of the work being placed in the hands of Mr. Frank W. Simon, the original designer of the building, which is a matter of satisfaction to the architectural profession. The construction is now being continued under a temporary contract on a percentage basis by the Jas. MacDiarmid Co., Ltd., of Winnipeg, until a schedule of quantities can be prepared for the balance of the work, and a new contract will be let for completion.

The plan is laid out on dignified and simple lines, and takes the form of a letter "H," contained in a rectangle measuring 337 ft. by 323 ft. The central portion is occupied by the entrance-halls and grand staircase and legislative chamber, library, premier's parlour, and committee rooms, whilst the wings are assigned to the executive offices.

The building occupies a symmetrical site of about thirty acres in area, bounded by Broadway and the Assiniboine River, Kennedy and Osborn Streets, and the main façade is set back 350 ft. from Broadway. The site is intended to be laid out in a park-like manner.

The building generally is in the classic style based on Greek detail. The principal entrance faces Broadway under a portico of six Ionic columns supporting a pediment filled with emblematic sculpture. Over the centre of the building is placed a dome 230 ft. high, surmounted by a figure in bronze, bearing a lamp which will be lighted when the House is in session.

In the original design the building was to have been supported on reinforced concrete piles driven to rock, the dome being placed on reinforced concrete caissons. It was, however, decided by the late Government to carry the whole on caissons, as no reinforced concrete piles had up to that time been driven in Winnipeg, though their satisfactory use to a depth of 70 ft. has been attested in Government work in the Old Country. Grillage beams are placed upon the caissons to carry the walls. For the reinforced concrete construction above foundations in the original design, steelwork encased in concrete was substituted and floors have been constructed of concrete slabs reinforced by "Triangle Mesh" reinforcement.

The exterior of the building is faced with local Manitoba Tyndall stone, which, though requiring somewhat careful selection, is a sound building stone displaying much character in colour and mottle. Tyndall stone has already shown good weathering quality in many buildings in Winnipeg. Light grey

granite will be used for the steps of the four porticos. The finest selected Tyndall stone will also be used in facing the entrance, grand staircase, and members' ante-halls and surrounding corridors, domes, vaults, and ceilings being carried out in French stone (Caen Stone Cement). The Legislative Chamber will be lined to cornice height with Mazzano marble, its vaulted plaster ceiling being decorated in colour. Floors of halls and corridors will be paved with varying shades of Tennessee marble enriched with European and Canadian marble inlay. Columns, mantel-pieces, dadoes, bases, etc., will also be carried out in various Canadian and European marbles.

The Premier's and Lieut.-Governor's rooms, ministers' suites, and committee-rooms will be panelled in different hardwoods, and hardwood trim will be used throughout the building. A number of the rooms will have parquetry floors, while in the remainder oak or maple will be used. Windows throughout will be fitted with Henry Hope and Sons' (England) steel casement sash, and also with interchangeable steel storm sheets and fly screens. Bronze will be largely employed in entrance doors, screens,

## PLUMBING.

Cold water service will be supplied from storage tanks located in the second stage of the dome, hot water being supplied direct from the powerhouse by means of a circulating system so arranged that hot water can at all times be immediately obtained at any fitting. Hot water supply pipes are to be of drawn annealed brass so as to avoid the danger of damage to the system likely to be caused by the soft water with which Winnipeg will soon be supplied. A vacuum-cleaning system will be installed at all convenient points. Fire-service outlets and hose supplied direct from the mains will be so placed as to control the whole of the building. A private post office and telephone exchange will be provided, and the latter will be supplemented by inter-communicating 'phones and bell system. Pneumatic clocks controlled by a master clock situated in the central hall will also be provided.

The work of setting the cut stone and utilising other materials supplied under the former contract is now proceeding, and in order to avoid delay in continuing the work when a tender for completion is accepted in the spring a contract has been made with the

# SALE OF THE ARCHITECTURAL ASSOCIATION PREMISES AND TRANSFER OF THE ROYAL ARCHITECTURAL MUSEUM TO SOUTH KENSINGTON.

Next Monday, the 19th inst. at 6 p.m. a special general meeting will be held of the Architectural Association at Tottenham Street to confirm the following presidential statement with reference to the sale of the existing premises:—

"For some years past the question of premises has been prominently before the council, owing to the increasing activities of the association and the growth of the school. The present accommodation is neither adequate nor suitable in normal times, and with a view to a change in the near future, the council acquired the leases of Nos. 35, 37, and 39, Great Smith Street as a preliminary step. This was done with the concurrence of the advisory council of the association, with whom all important matters affecting the welfare of the association are discussed.

"The outbreak of war last year compelled the council to postpone any further steps towards the acquisition of new premises or the enlargement of the existing building, and the matter has been in abeyance until recently, when an offer was made for the premises in Tufnell Street by the National Lending Library for the Blind.

"The council, feeling that this offer was too important to be allowed to pass, consulted the Advisory Council, put the whole matter before them, and informed them fully of the policy pursued in the past, and the aims of the association for the future. The result of the conference was that the council accepted the offer made by the National Lending Library for the Blind, and has made arrangements for the association to occupy No. 37, Great Smith Street as temporary premises until the conclusion of the war.

"The change of premises will not interfere with the activities of the association, and the school will be carried on as heretofore.

"The question then came before the council of the best method of dealing with the contents of the Royal Architectural Museum, which occupies nearly one-half of the available space in the building. It has long been a matter of regret that the housing of this very valuable collection of casts has left so much to be desired in the way of suitable space and good lighting, notwithstanding the fact that the association has spent some hundreds of pounds on its rearrangement and classification.

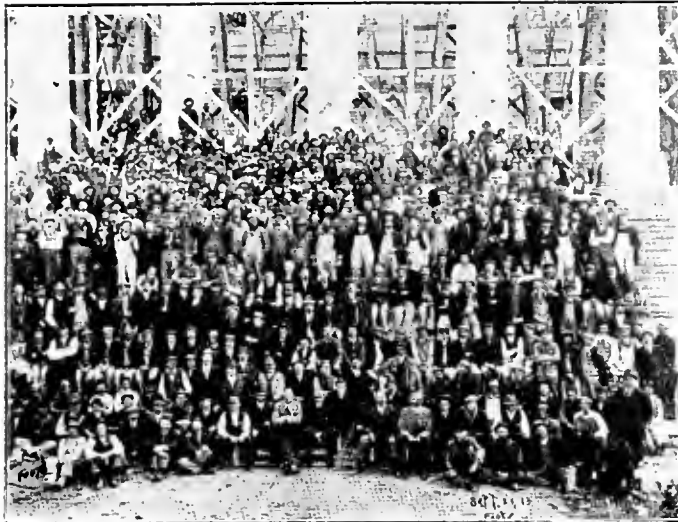
"In recent years the number of visitors has been so small that the cost of the upkeep, which falls on the association, has not been justified. The council has therefore come to the conclusion, with the concurrence of the trustees of the association, that the wishes of the early promoters of the museum could best be met by offering the casts to the Royal Victoria and Albert Museum, retaining a few that are necessary for the school. The offer has been accepted, and the casts are now the property of the nation, and the authorities have promised that every facility will be given to students who desire access to them.

"These changes have doubtless been made in the best interests of the association, and after the most careful thought has been given to the matter. The most important result of the change is a very large annual saving in rent and other standing charges, which will go far to meet the heavy losses sustained by the association owing to the war.

"It is hoped that the action of the council will meet with the approval of all members of the association. With this end in view a special general meeting is to be held on January 10, 1916, when fuller details of the matters referred to in this letter will be put before the members."

H. AUSTEN HALL, President.

Mr. George Marsh, a Nottingham architectural sculptor, was found dead in his office on Wednesday, death having apparently been caused by asphyxiation through an escape of gas. Mr. Marsh had been missing for several days, and the discovery followed upon the reopening of the office after the holidays.



Mr. F. W. SIMON, F.R.I.B.A., and his helpers at Winnipeg.

railings, lamp standards, and hardwood. Six electrically controlled elevators will serve the building, two being placed in the centre and one in each of the four wings.

The needs of the building call for a very large connected load over comparatively large areas for lighting and power, and this has led to the adoption of what closely approximates to powerhouse methods—that is, the circuits have been so arranged that the usual switchboard is dispensed with. Feeders are run directly from the two transformer rooms to the riser shafts, and from here the distribution is in the usual manner through panel boards to the branch circuits. Electrically-controlled switches are used wherever a feeder or riser has its origin, and where special lighting is placed a board equipped with control switches and indicating devices will be located in the engineer's room. All switching will thus be done from a central point without incurring the expense of the heavy runs of copper consequent on the use of a central switchboard. Two banks of transformers will be connected delta to star, allowing the use of a four-wire three-phase system of distribution, the neutral being grounded at all points. The regulation is designed to be not wider than 2 per cent. over the entire system.

A complete system of steam radiation is provided, controlled by thermostats operated by compressed air; washed and heated air—its temperature again regulated by thermostats—will also be supplied. A perfectly even temperature of from 60 to 75 degrees, as desired, will thus be maintained, together with a continuous supply of fresh, pure air. Steam will be supplied from the provincial powerhouse by way of a tunnel under Broad way.

Wallace Sandstone Company, Limited, of Tyndall, for the supply and storage, till required, of cut stone for the interior, and Henry Hope and Sons have been instructed to proceed with the steel casements. The cubical contents of the building are approximately 7,000,000 cubic feet.

The original tender amounted to \$2,859,750, exclusive of heating and ventilation, lighting, and plumbing, a sum which is generally considered to represent a very low estimate of the value of the work. Figures for the probable cost of the building when completed are not yet available.

The persons and firms at present connected with the work are:—Architect, Frank W. Simon, F.R.I.B.A.; consulting constructional engineer, S. Bylander; quantity surveyor, Hugh Watkins; consulting electrical engineer, J. M. Leamy; consulting mechanical engineer, S. S. Kennedy; chief inspector, Thomas Wallace; cut stone inspector, P. McKissock; inspector's clerk, T. H. Wood.

The contractors under the present temporary arrangement are the Jas. McDermid Company, Limited. Sub-contractors:—Steelwork: the Manitoba Bridge and Iron Works, Ltd.; cut stone, the Wallace Sandstone Company, Limited; electrical work, the Schumacher Gray Company; plumbing and steamfitting, the Jas. Ballantyne Company, Limited; marble, the Marble and Tile Company of Canada.

[We very fully illustrated the building in our issue of September 27, 1912, and we have commented several times since on the subsequent developments in connection with the undertaking. The report of the Royal Commission will be found on p. 319 of our issue, September 22, 1915. For the foregoing particulars and the illustration we are indebted to the *Canadian Contract Record*.]

## Corrente Calama.

Is the Local Government Board really going to bring in a Bill "to give it power to enforce its views on local authorities"? So it is alleged to have been stated by the solicitor who defended a firm at Newport summoned for failing to provide a closet-flushing apparatus. Mr. Newman, the town clerk, said he was not aware that the Local Government Board proposed to become supreme over local authorities. "If so, then they had sounded the death-knell of local authorities who had been given power to administer local affairs." In some places the "death-knell" seems to have been sounded some time since, and all that remains is to bury out of sight the local authority and the few shreds of power left to it. It may be, in this as in some other things, that the "march of Democracy" we have all heard so much about during the last few years is logically and beneficially towards centralised Bureaucracy, dominating everything at its will and pleasure, or rather that of the Treasury. Democracy, we suppose, will continue to pay its money and take its choice of the few liberties left it by the new expounders of Freedom!

The Lord Mayor of London has consented, at the request of the Civic Arts Association, to preside over a meeting at the Mansion House on Friday, the 23rd inst., to insist upon the importance of some consideration or regulation of war memorials if fitting excellence of work and design is to be secured. Interviewed by the representative of the *Times* on this subject, Sir Thomas Brock is reported to have expressed the opinion that among our artists and craftsmen there is very little real power either in venture or executive. There is, however, he thinks, no need for any repetition of the monumental horrors of the late eighteenth and early nineteenth centuries. If this tradition is perpetuated it will be the fault of the public, not of the artists available. For the public the duty is that of selection.

Australia House, the new home of the Australian Commonwealth, on the eastern horn of Aldwych Crescent, is nearing completion. The work of construction was seriously delayed two years ago by the strike in the London building trade, and since the outbreak of the war progress has necessarily been slow, but it is expected that the building will be opened about the beginning of April. There is said to be some probability that Australia House will not justify its designation as completely as hoped when it was first planned. The intention then was that not only the Commonwealth Government offices, but the offices of the several Australian States should find a home in the building. So far, however, only one of the six States Victoria has pledged itself to join in the enterprise. New South Wales and South Australia are negotiating for a site elsewhere. West Australia and Queensland have already secured premises in the Strand, and Tasmania prefers to remain in Victoria Street. Various objections are urged by the colonial representatives. It is said to be too far east, and the fear is entertained that the different States would lose something of their separate identity if all were housed in one building, however palatial and convenient. We illustrated the plan in our issue of July 4, 1913, and the Exhibition Hall in that of October 20, 1915. The architects

are Messrs. A. Marshall Mackenzie, LL.D., A.R.S.A., F.R.I.B.A., and A. G. R. Mackenzie, F.R.I.B.A. The builders are Messrs. Dove Bros.

Mr. George Wilkinson, the borough electrical engineer of Harrogate, in a useful paper on "Developments in Electric Heating" read before the Institution of Electrical Engineers, appeals for automatic temperature control of domestic electric fires, and gives a very full description of the thermostats which the author has recently developed for this purpose. The increasing popularity of what has now come to be known as the "electric fire" is attributed to great improvements in the design of the apparatus, to increased reliability, and to greatly reduced prices. Early progress would have been even more rapid had a higher capacity fire been adopted, and also had the charges for electrical energy been lower than they were. In order that an electric fire can be capable of raising the temperature of a room to a comfortable degree on the coldest day the rating of the apparatus selected should not be lower than  $1\frac{1}{2}$  watts per cubic foot of room space. Rooms having an exposed aspect or many windows should be rated on a basis of 2 watts per cubic foot. The paper is well worth study by all anxious to help along the general adoption of electric heating—the ideal method if all its advantages can be fully utilised.

Indiscriminate tampering with the city building code, for selfish ends, by politicians in the city council ignorant of the city's needs and careless of its welfare, has brought about the resignation of Virgil D. Allen, Building Commissioner of Cleveland, and raised a storm of protest from the Cleveland Builders' Exchange, the Cleveland Chapter of the American Institute of Architects, the Cleveland Engineering Society, and the Society Advocating Fire Elimination. It is alleged that the law limiting the height of buildings was twice overridden in the city council (with some show of reason, however) to suit the convenience of powerful and well-to-do builders. It is charged openly that councilmen act as the agents of private individuals in breaking down the building code restrictions which are the results of years of labour, given unselfishly, by men who have spent their lifetimes in the study of these problems. It has been suggested that all pending legislation in council pertaining to changes in the building code, be first submitted to the joint code committee for its opinion, if not for its official sanction. The consensus of opinion seems to be that politics and building are like "kids and concerts," they don't mix, and the analogy might be drawn further without trespassing into the realm of fancy.

After spending a year preparing a comprehensive report, the Cincinnati Chapter of the American Institute of Architects has launched a movement for a State registration system for architects. The question before the Architects' Chapter is this: "Shall we continue to uphold the ideals of our profession or shall we admit that our vocation is no longer a profession, but has been degraded into a business conducted by advertising corporations working the threadbare game of combining the sale of a building commodity at low prices with furnishing free plans and specifications, in order that they may reap an unusual profit without competition or supervision?" The committee recommends

to the chapter a closer business co-operation between practising architects in this organisation, a discussion among the chapters of the State of all matters of interest to the profession in the State by means of conference committees of the various chapters, and is unanimous in the opinion that suitable laws for the registration of architects if properly drafted would make a decided improvement in the general standing of the profession and tend to place the practice of architecture upon a more ethical basis. The chapter will appoint a committee to gather detailed statements of cases in which actual fraud has been practised by persons claiming to be architects, as a first step toward securing State action in the matter. The Cincinnati architects expect to have serious opposition in the campaign, but look for the support of the best element in all branches of the building trade.

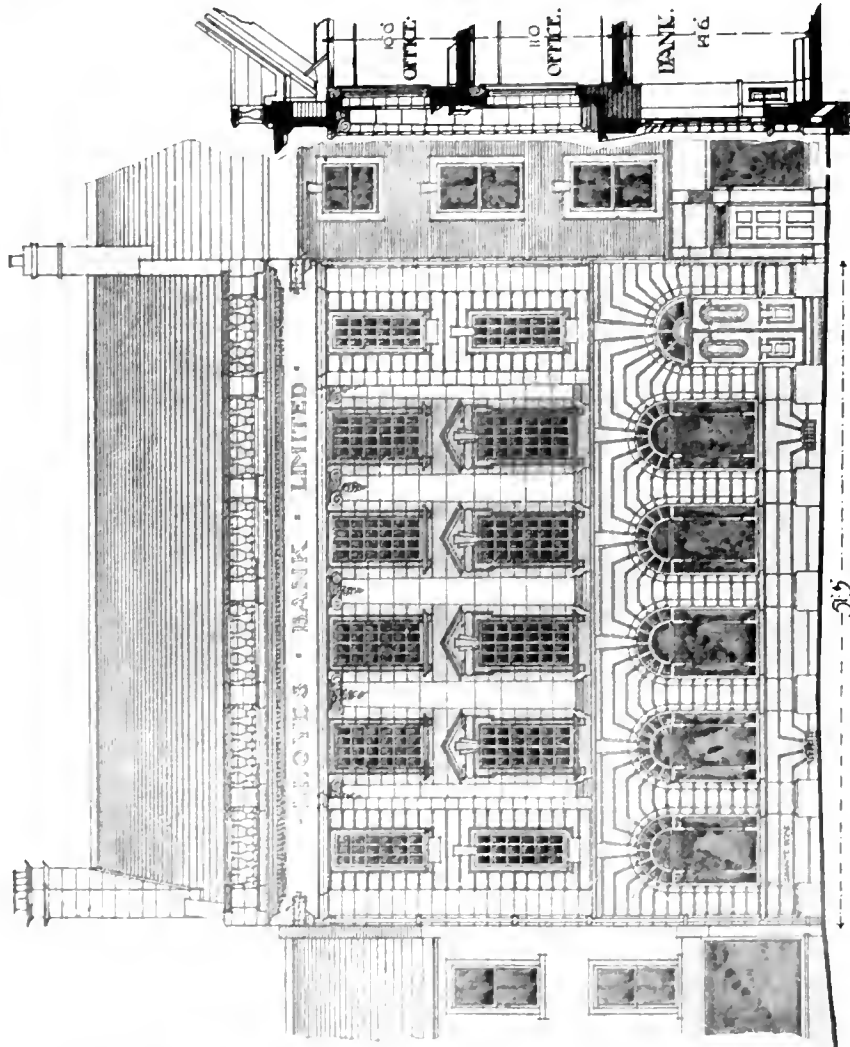
The holder of a lease, originally granted to an alien, who is now also an enemy, seems to be in a peculiar position. For it would appear that he cannot, or at least need not, pay the rent to such lessee, as his assignor, although the enemy alien must certainly pay the lessor and landlord. This is, so far, the result of the curious case of *Halsey v. Lowenfeld* (*Leigh v. Curzon*, third parties), just decided by Mr. Justice Ridley in the High Court. The defendant was sued for £1,500, a quarter's rent, under the lease granted him in 1896, of the Prince of Wales's Theatre. The defence was that the lease became void on the outbreak of the war. Besides this plea, the defendant claimed indemnity from the persons cited as third parties, one as assignee of the lease and the other as sub-tenant of the theatre. The judge held that the lease was not avoided by the war, and so the defendant, as original lessee, was still liable for the rent. Then as to his claim of indemnity against the third parties, though this would be valid in time of peace: the Court could not now aid an alien enemy to enforce his rights in this country, so there was judgment for the plaintiff for his rent, with costs, and also for the third parties brought there, with their costs—altogether a bad business for the defendant, who has to pay this large sum and cannot, at present, get it back again. But perhaps the Court of Appeal may take another view if asked.

Mr. Robert Boyle has republished the article on "The Ventilation of Picture Halls," which he contributed to our issue of December 8 last, as a booklet, and it may be had free on application to his firm, Messrs. Robert Boyle and Son, 64, Holborn Viaduct, E.C. Architects and builders conversant with the difficulties of effectually ventilating picture halls, and many others deterred from visits thereto by the foul fumes and tobacco smoke, will be glad to note the testimony to the value of the system described, which Mr. George Beattie, architect, of Glasgow, has so successfully applied to the Maryhill Picture House, Wyndford Street, Glasgow, which is well worth a visit from any reader near. Few severer tests could have been made, considering the populous district of which the picture house is the centre, and the large number of the artisan and labouring class who patronise it, and none could have proved more satisfactory. Applicants for the booklet will doubtless get as well, if asked for, one of the useful and handsome ivory pocket calendars for 1916 which Messrs. Robert Boyle and Son issue to their friends.



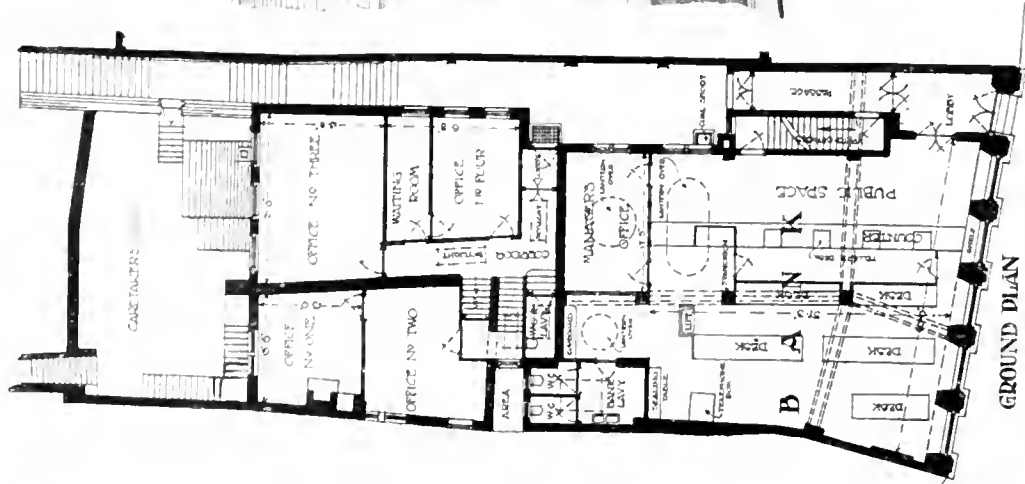


LLOYDS BANK LTD MARKET PLACE  
DURHAM

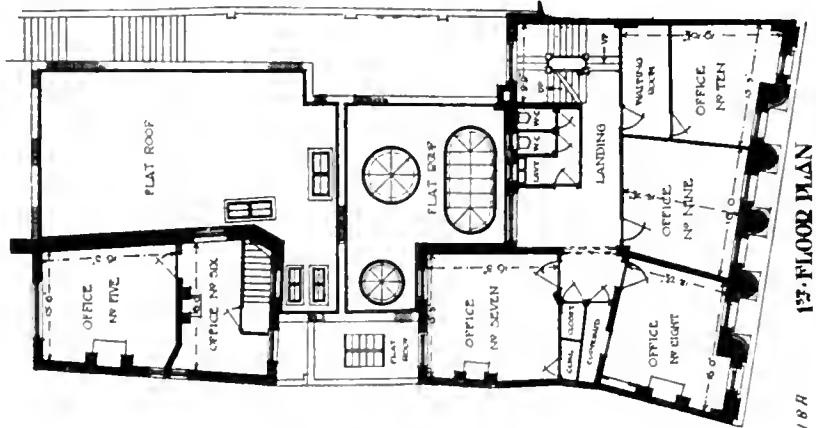


SECTION

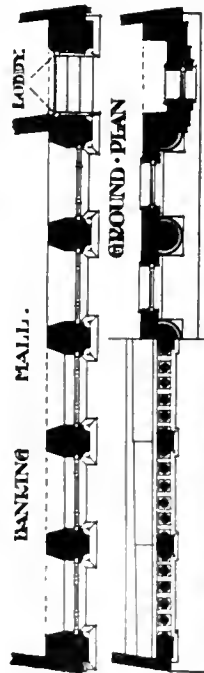
ELEVATION TO MARKET PLACE



GROUND PLAN



13th FLOOR PLAN



PLAN OF BANKING MALL

PLAN OF MARKET PLACE



John & Russell Architects 918 H  
LONDON & NEWCASTLE  
DESIGNED BY J. RUSSELL  
DRAWN BY J. RUSSELL



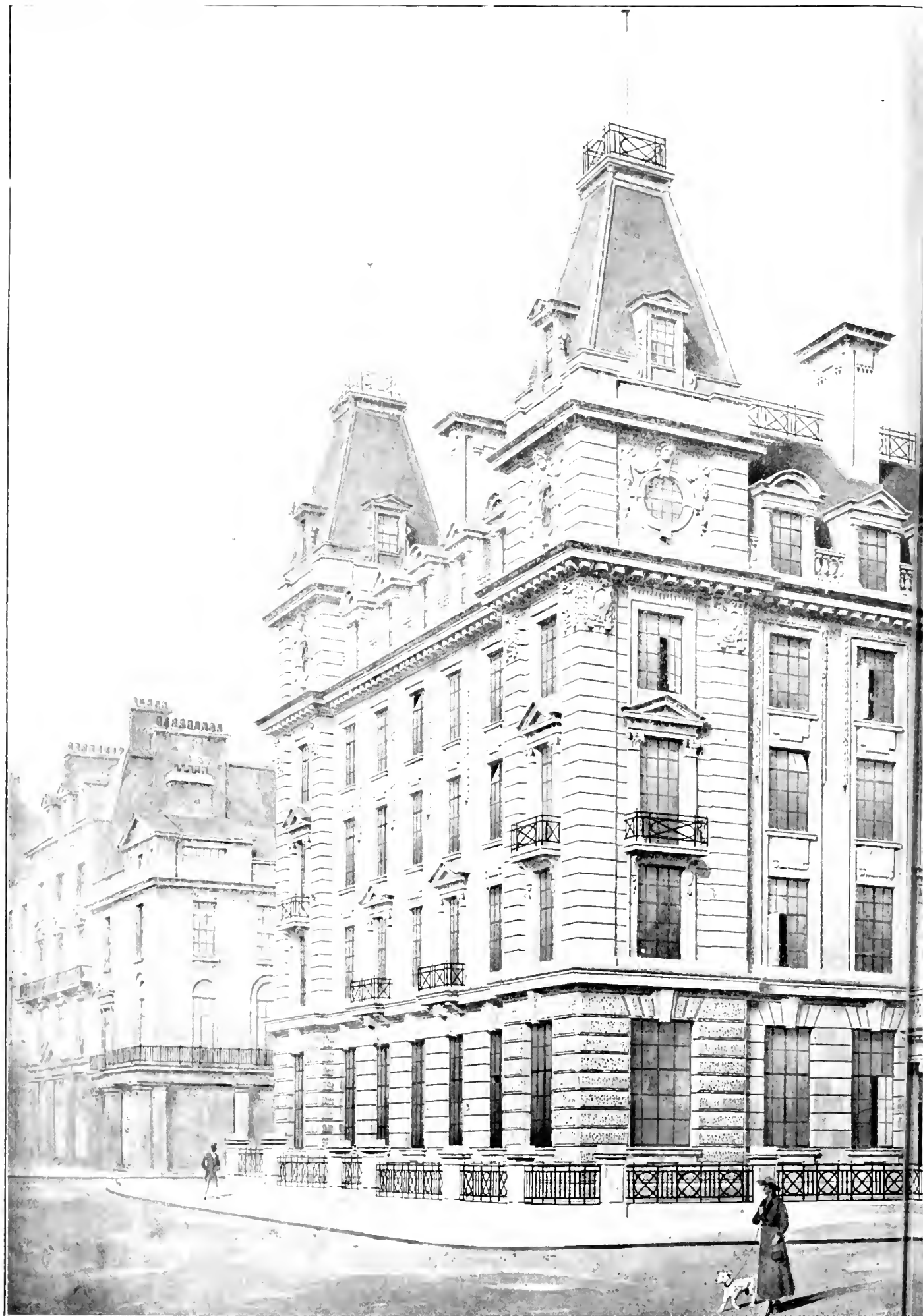




PANDORA. ROYAL ACADEMY SILVER MEDAL PRIZE CARTOON FOR A DRAPED FIGURE. BY M. D. I. I.







NEW BANKING PREMISES FOR MESSRS. BARCLAY AND CO., AL



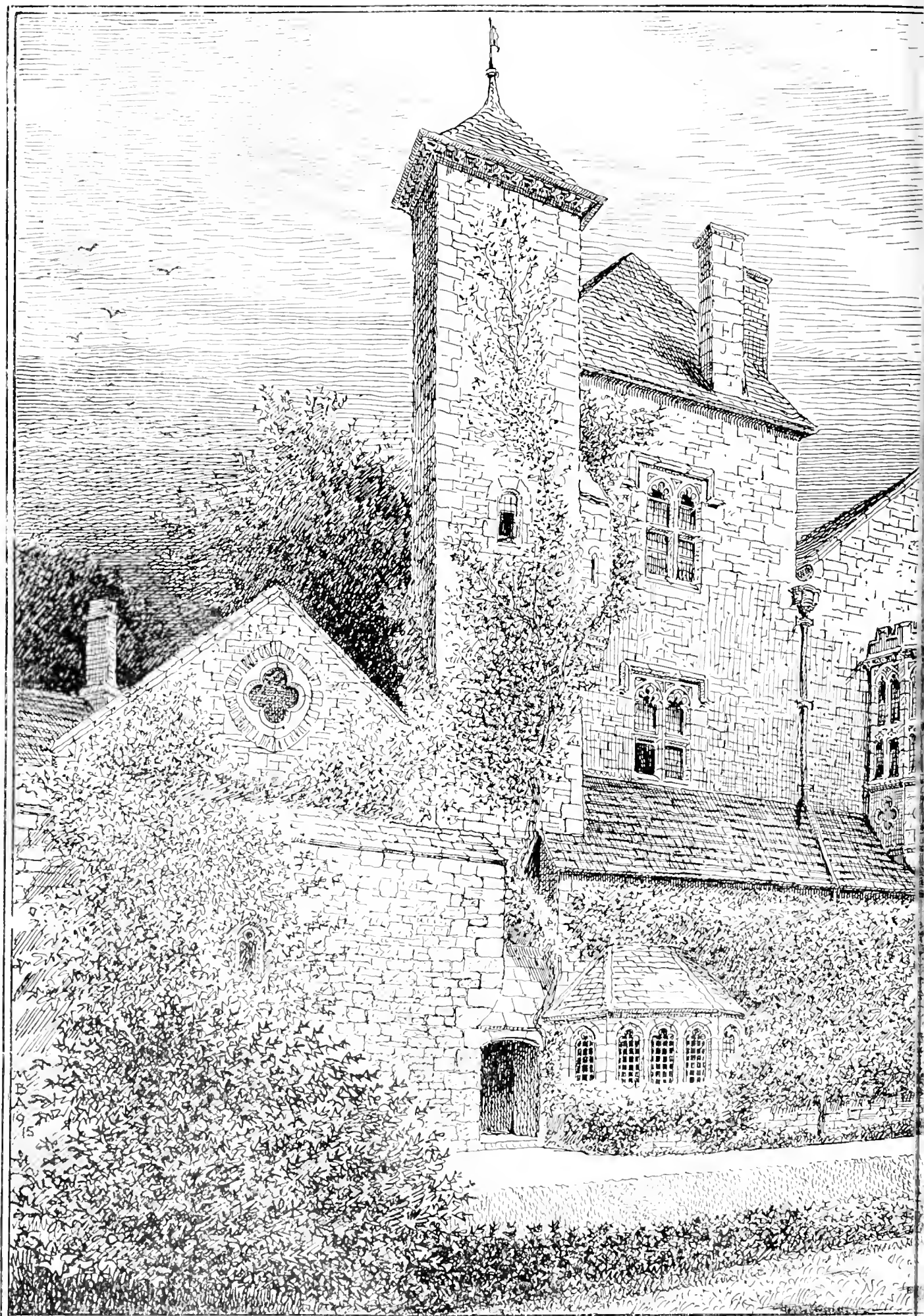
S, JANUARY 5, 1916.



MALL EAST, S.W.—Mr. ARTHUR BLOMFIELD, M.A., F.R.I.B.A., Architect.



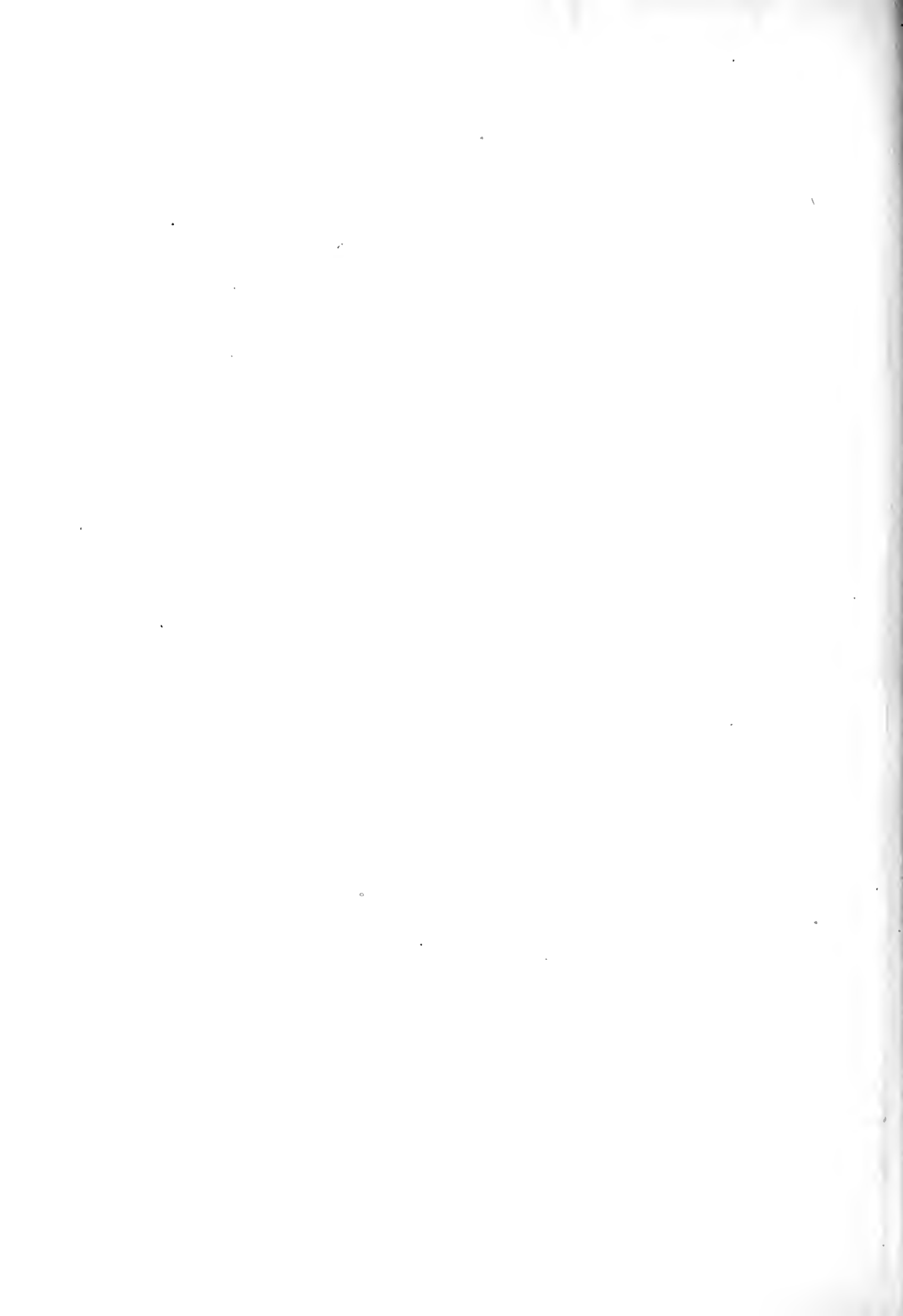




THE EPISCOPAL PALACE, WELLS, SOMERSETSHIRE: VIEW

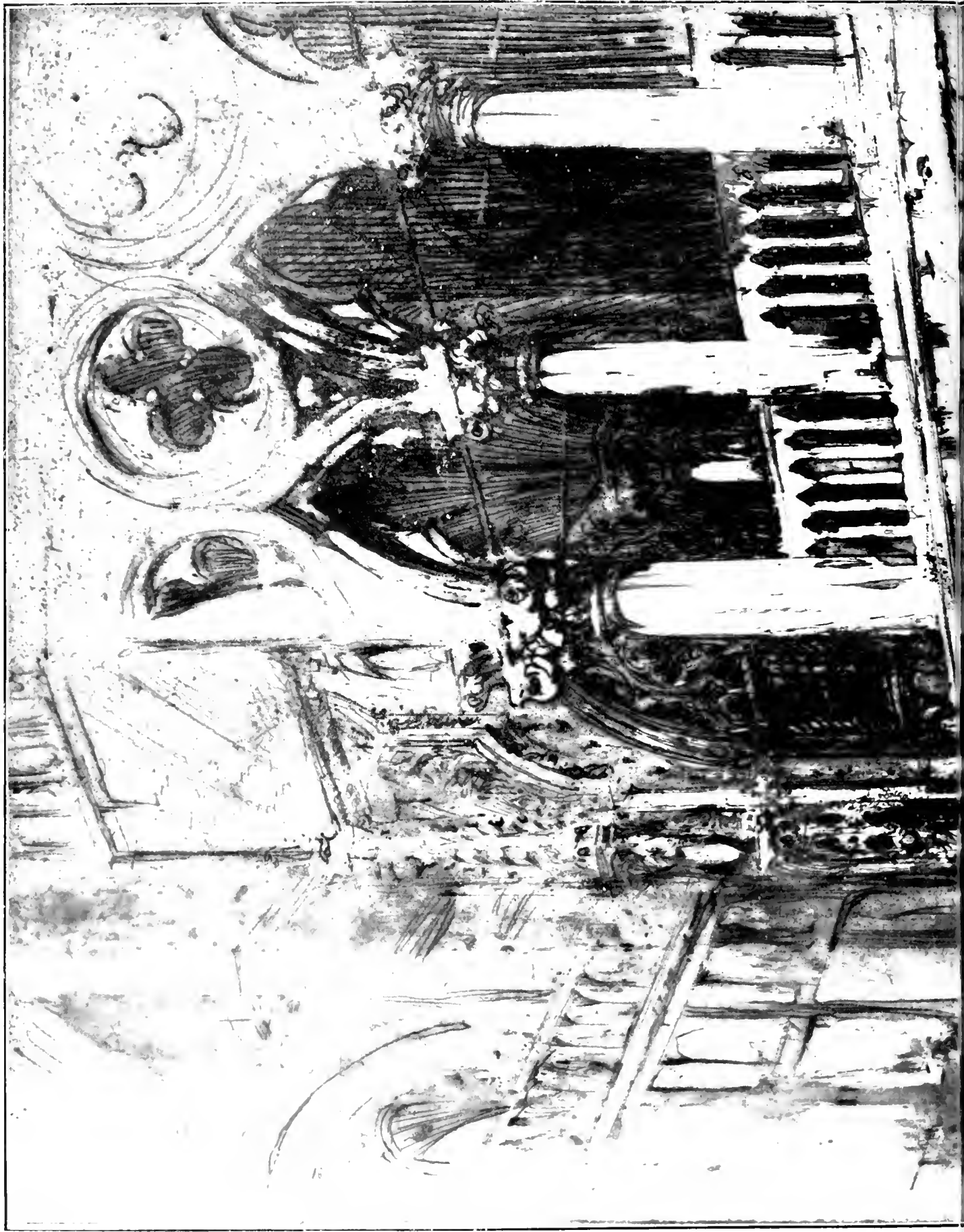


OF NORTH FRONT.—Drawn by Mr. MAURICE B. ADAMS, F.R.I.B.A.

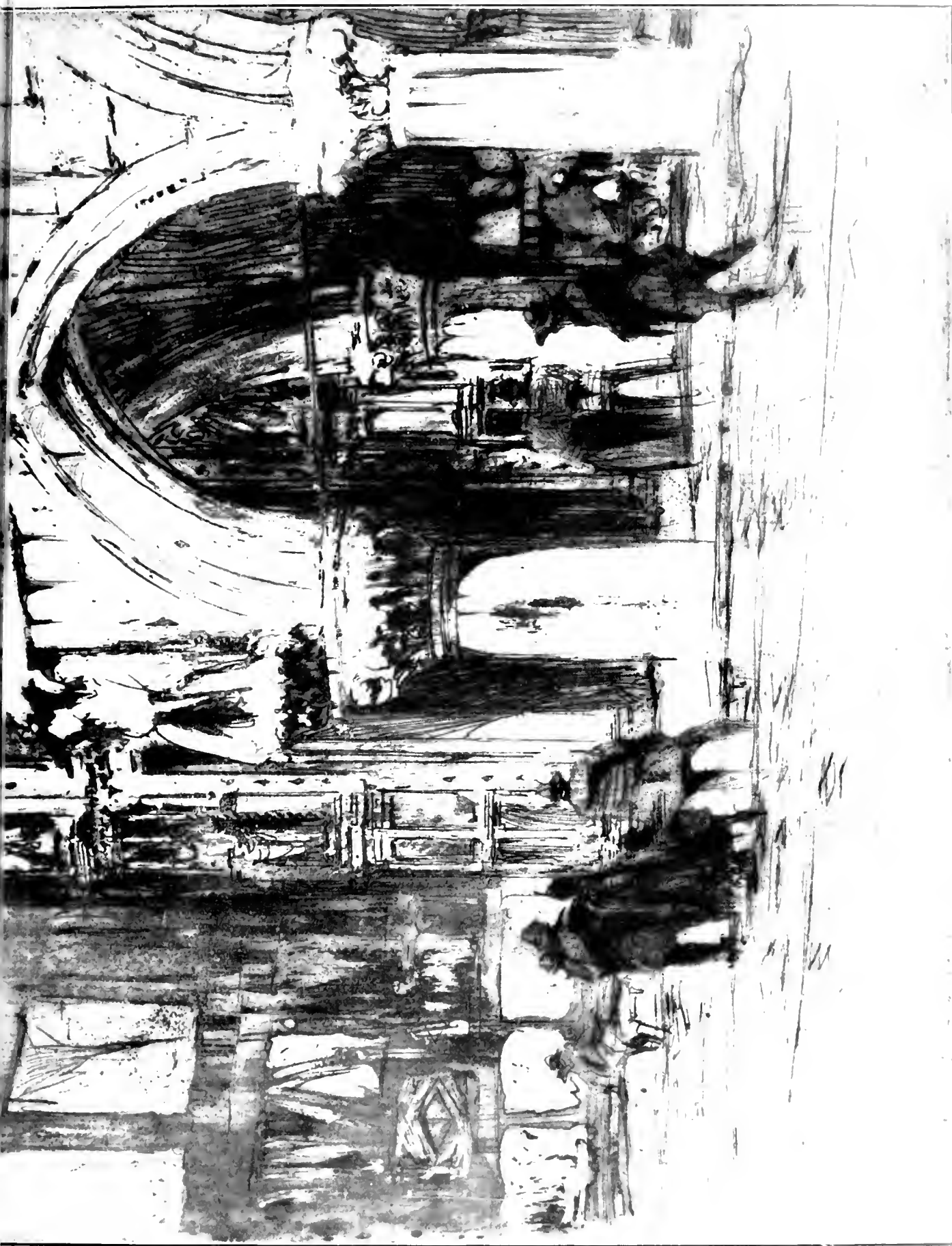






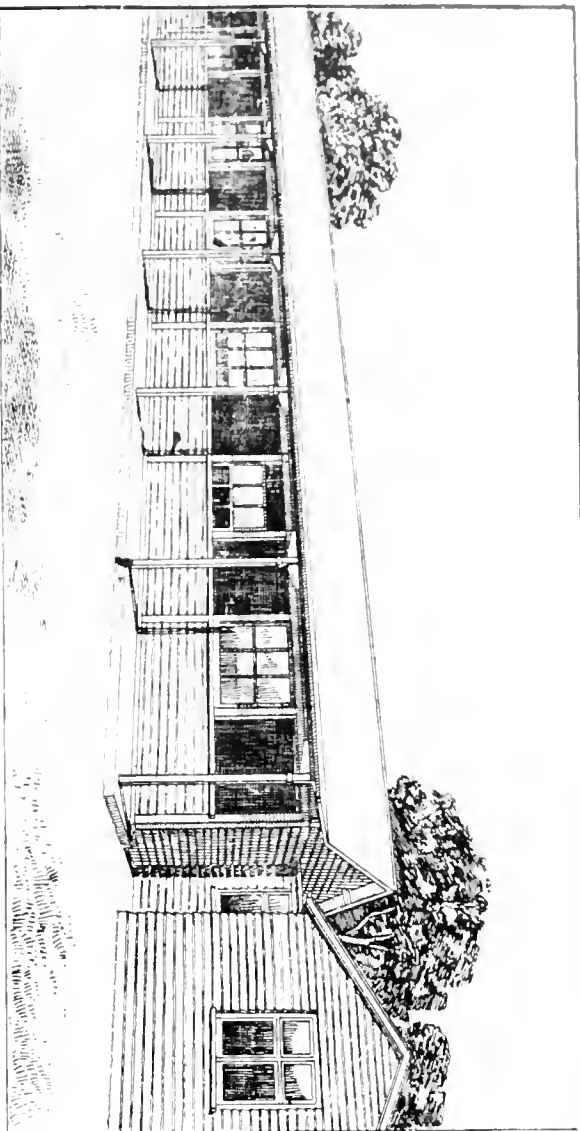






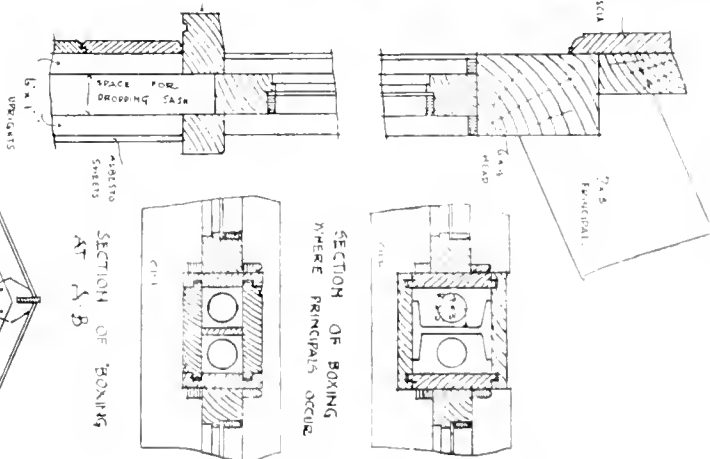
ENTRANCE TO THE DOGE'S PALACE, VENICE. From an Etching by Mr. W. W.



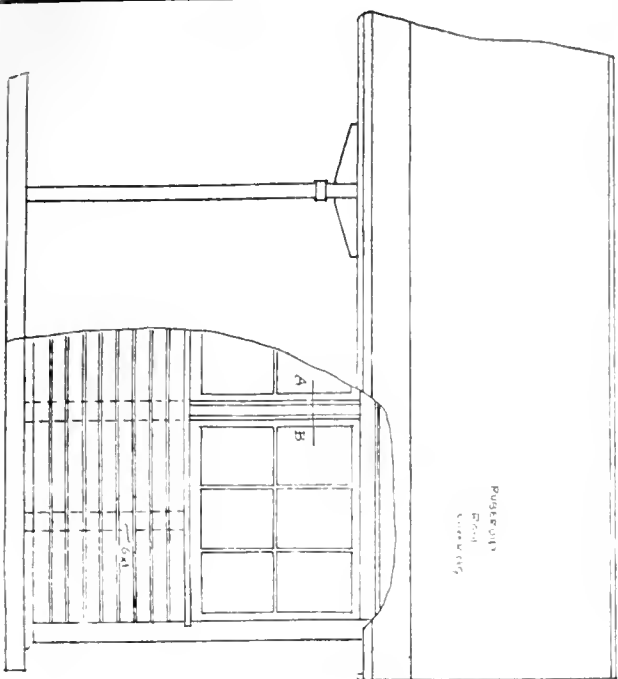


PERSPECTIVE SKETCH SHOWING ALTERNATE SASHES OPEN AND CLOSED

THE WHOLE OF THE FRONT PORTION ABOVE CILL LEVEL CAN EITHER BE ADJUSTED TO EITHER OF TWO POSITIONS BY MEANS OF THE SASHES WHICH WITH HEIGHTS WHICH CAN BE LOWERED TO CILL LEVEL.

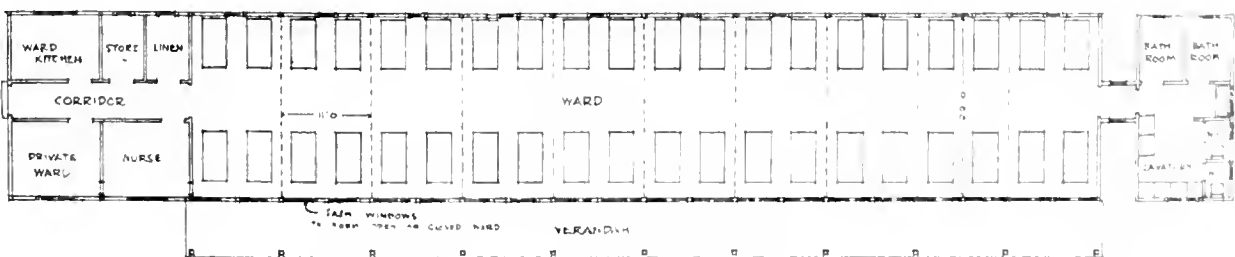
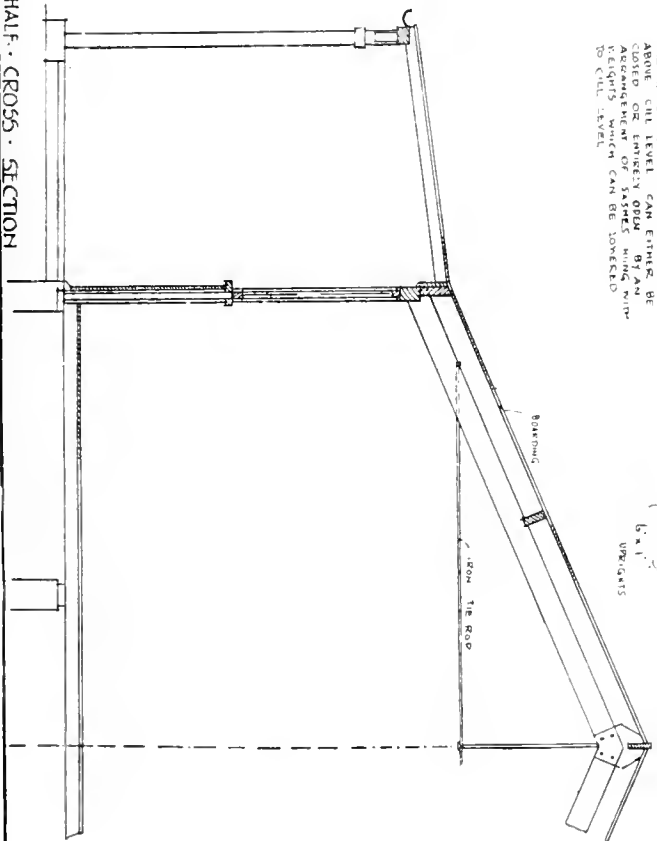


SECTION OF BOXING AT A.B.



DETAIL - OF - FRONT - ELEVATION

HALF - CROSS - SECTION



AN OPEN AIR HOSPITAL WARD, WITH SPECIAL CONTRIVANCE OF WINDOWS AND GLAZED SCREENS, SWANSEA.

MR. GLENDINNING MOXHAM, F.R.I.B.A., ARCHITECT.



## Our Illustrations.

### ENTRANCE TO THE DOGES' PALACE, VENICE.

We are enabled by the courtesy of Mr. W. Walcott to reproduce his charming etching which he has recently published under the above title, and we are indebted to him for sending the following note specially written by his friend, Mr. Ian Ivor:—

The palace of the Doges of Venice, although definitely related to a certain school of architecture, is, perhaps, of all famous buildings the one that we are justified in terming architecturally unique. A medley of East and West, we find here an interplay of both, which alone succeeds in differentiating this Gothic of the Venetians from our most endeared idea of Gothic of the north. The strangeness of fancy inherent in the Ducal Palace is what first besets our judgment of it. This is one of those things we think at first are ugly and presently come to love. Like many a building with a strong individuality of expression, it is easy to ridicule its particular features until the real beauties of the building are perceived and we acquiesce in it as "un prodige unique des beaux arts." The etching by Mr. W. Walcott shows us the "Judgment Angle" on the Piazzetta façade, so known from the group of the Judgment of Solomon above the angle column, the other angles of the building being distinguished by like Biblical pictures in stone. Behind we see the *Porta della Carta*. This, the great Renaissance entrance, is a harmonious connecting-link between the 14th Century Gothic of the Palace and the pure Byzantine architecture of St. Mark's, the two structures being at this point merged. Of the Palace itself, we have in this etching the lower story formed by the two superimposed arcades, the upper one dichotomous, a design with all the characteristic beauty of "Venetian Gothic." On that lower story, boldly challenging criticism, rests as uncharacteristic a piece of work as we shall find in any style or school, the great *Sala del Consiglio*, with chequered face and dilettante parapet. But for these aspects we can return, if we like, to Ruskin and be content to fix ourselves for the present on what the artist has chosen to represent. The etching does not, we feel, pretend to tell us anything new concerning Venetian architecture, for art in its happiest functions does not invite controversy, though it may be reminiscent of much. In a city like Venice, whose spell resolves itself into tradition merging into tradition—a myriad patterned web—the artist's caprice is dictated by the absence of any obligation to do other than accept whatever may be encountered, but as so much manifestation of a common spirit. However this may be, it seems the constant aim of Mr. Walcott's art to place the monuments of the age beyond the *stigmata* of a ruthless architectural criticism, a spirit of interpretation all true lovers of architecture will welcome.

IAN IVOR.

### NEW BANKING PREMISES FOR MESSRS. BARCLAY AND CO., PALL MALL EAST, S.W.

The site on which the new building illustrated is now being erected, from the designs and under the superintendence of Mr. Arthur Blomfield, M.A., F.R.I.B.A., is Crown property, leased to Messrs. Barclay and Co., Ltd., the well-known bankers. The block, in which they will occupy the major part of the ground floor, is being erected in sections in order to arrange for them to utilise—as they are now doing—the eastern part as temporary premises, and to allow for the due expiration in a short time of some existing tenancies. The new building will be of Portland stone, and will provide large and well-lighted suites of offices or chambers on the upper floors, access to which will be afforded by the eastern of the two entrances, leading to a well-lighted staircase, provided with two

quick-rising lifts. The western entrance will be that of Messrs. Barclay's Bank, being approximately in the same position as their former entrance, the banking hall being lighted from the Haymarket and from the Pall Mall and Suffolk Place sides also. The contractors are Messrs. Geo. Trollope and Sons and Colls and Sons, Ltd. The plan printed herewith shows the extent and position of the site. The United University Club House, seen to the right in the picture, at the corner of Suffolk Street, was erected a few years ago from the design of Mr. Reginald Blomfield, R.A.

### THE EPISCOPAL PALACE AT WELLS, SOMERSET.

A description of this plate will be found in our third article this week, p. 3 ante.

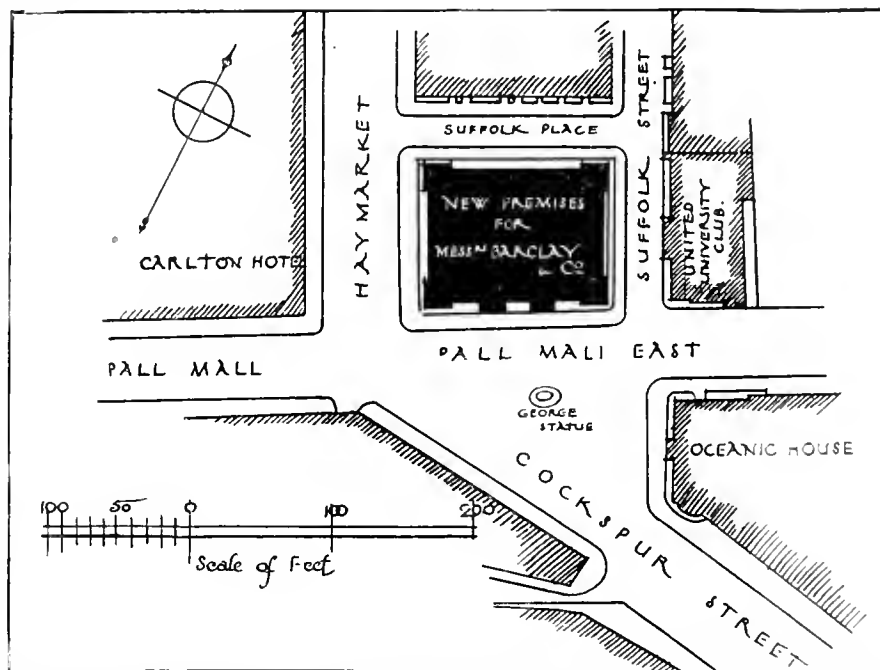
### "PANDORA": ROYAL ACADEMY SILVER MEDAL PRIZE CARTOON FOR A DRAPED FIGURE.

Miss Dorothy Fraser Litchfield, of West Hampstead, is to be congratulated on her

bitious character would be imposed, great adding to the complexity of the whole thing.

### NEW PREMISES FOR MESSRS. BARCLAY AND CO. LIMITED, MARKET PLACE, DURHAM.

Some fifteen years ago a site was acquired in the Market Place, Durham, for new premises were then built, but owing to the rapid expansion of the business, the existing building has been found necessary, and with an extension of 28 ft. mortgage of the site being taken of this to straighten the field line. Formerly the manager's house was on the bank, but as there is a demand for modern offices, the residential part of the bank has been converted into chambers, and the top storey utilised for the caretaker. The premises are now nearing completion. We here give the main floor plans and elevation. On the ground floor is a large new banking hall, with manager's office, facing into Market Place, and at the rear various suites of offices are provided. The basement is devoted to the fireproof book, stores and



BLOCK PLAN OF MESSRS. BARCLAY AND CO.'S NEW BANK, PALL MALL, S.W.  
MR. ARTHUR BLOMFIELD, M.A., F.R.I.B.A., Architect.

drapery cartoon, for which the silver medal and prize of £20 was awarded at the Royal Academy annual distribution of prizes last month. This subject for a draped figure usually presents an isolated sort of problem, and therefore it is correspondingly difficult to treat. In the present instance "Pandora" in this respect is not to be differentiated from any other individual figure unless the subject happens to be "Peace" or "War," or some such abstract or emblematic personality. In cases of that kind the competitors no doubt have more scope in the way of composition or decorative ideal. Miss Litchfield certainly realised the intentions of the Council correctly by handling the subject purely as a study of drapery on a large scale. There can be no question as to the skilful arrangement of the draperies and the relative value of the long line from the head of the kneeling figure in contrast with the intricacy of folds so well delineated in other parts of the cartoon. If the Royal Academy were to set a subject for a decorative scheme including many or few draped figures one of these could be taken from the general composition, as is done in the competition for the decoration of a public building, and in this way no doubt an additional interest would be given to the cartoon of a subject thus chosen. On the other hand, though this so far might be described as an advantage, the elementary idea and main purpose of the draped figure cartoon would be lost and other considerations of a much more an-

strong rooms, carried out in reinforced concrete; heating chamber, and additional strong rooms connected with the suites of offices. The whole of the first and portion of the second floors are arranged in well-lighted suites of offices, the remaining portion being devoted to caretaker's residence. The front elevation above the base, which is of polished granite, is executed in local stone of pleasing colour, from Windy Nook Quarry, and the back elevation is built of hard, deep red, pressed bricks, supplied by a local maker. Lavatory accommodation is provided in convenient positions, both for the bank and suites of offices. The roof is covered with decorative Westmoreland slates, in diminishing courses. The bank and first floors are fireproof, carried out in reinforced concrete, and stairs are of hard Heworth stone. The lobby entrance to building and public space, a front entrance is laid with Ceramic; behind the entrance the clerks' space is pitch pine wood panelled. The public lobby to bank and offices are tiled to a height of 6 ft. The floor throughout is tiled with glazed tiles of various coloured tiles and lighted by electric light. A book lift is conveniently placed from the basement to the bank level. Electric light is heated throughout on the hot water system. The screens, partitions, and other fittings to bank, with restrooms, are carried out in walnut. Mr. W. H. H. Gateshead-on-Tyne, has carried out the work. The sub-contractors are: Messrs. J. H. Newcastle-on-Tyne, plastering; Mr. S. H. H. of Gateshead-on-Tyne, painting; Messrs. J. H. H.

Messrs. Marshall and Co., of South Shields, painting; and the Chubb Lock and Safe Co., of London, the strong-room work and shelving. Mr. John G. Barrell, Licentiate R.I.B.A., Market Place Chambers, Durham, is the architect.

#### DANYCÖED RED CROSS HOSPITAL, NEAR SWANSEA, AND AN OPEN-AIR HOSPITAL WARD.

Mr. Glendinning Moxham was instructed to prepare designs for two open-air wards for the Red Cross Hospital, Danycoed, Swansea, and as the site was in an exposed situation the question of suitable protection had to be considered. The use of canvas blinds with one side practically open would in every way be



DANYCÖED RED CROSS HOSPITAL, NEAR SWANSEA.

Mr. GLENDINNING MOXHAM, F.R.I.B.A., Architect.

at the question, as the life of canvas blinds, if used, would be of a very short duration and would not form adequate protection. In this instance, therefore, the wards were arranged to have (see photograph) sliding sashes to the front, and by this means provision was made that, when so desired, it is possible to have the ward with two-thirds of the front open and also protected by a low-pitched verandah roof, as seen in the photograph. The medical opinion of these wards has been very favourable; but the architect came to the conclusion that an improvement could be made on this design, and the result is shown by the accompanying drawing reproduced by our single page illustration. This design has been most highly spoken of by some of the leading medical men of the day. The object insured by Mr. Glendinning Moxham by his new plan, is to enable the whole of the front portion to be opened in an easy manner. The windows, which are juxtaposed, are constructed so that the sashes may be lowered beneath the sill, the sill being fixed at a convenient height, thus permitting the sashes to descend to be flush with the top of the sill, while on the interior the space between the floor and the sill is covered with asbestos slabs, and the outside is enclosed with boarding on battens, thereby providing a boxed-in well for the sashes to descend in when they are opened. It will, therefore, be seen that a continuous opening can at once be had when desired, the only objects standing in the front being the uprights for carrying the structure as well as the boxed mullions for the sash-weights. The sashes can also at all times be lowered to any desired height, and the contrivance generally has many advantages in this way. Much ingenuity is displayed in the details of this very simple and inexpensive design, which will be very useful for temporary hospital provision. We gave Mr. Saxon Snell's Chadwick Lecture on "Emergency Hospital Construction" with several typical plans and illustrations in our issue of November 17 last, and these designs by Mr. Glendinning Moxham, F.R.I.B.A., may be very easily added now in this connection.

#### OBITUARY.

Second-Lieutenant Ernest Kennedy Smith, 1st East Kent Regiment, who died of severe wounds in the head received a few hours previously in Flanders, on December 22, aged twenty-three, enlisted a month after the war broke out, and after training with the Artists' Rifles, received his commission last July in the 1st Buffs. He was the eldest son of Mr. and Mrs. W. Macdonald Smith, of Onslow Gardens, Muswell Hill, was educated at Dover College and Highgate School, and was a promising young architect, having obtained marked distinction at the Architectural Association School of Architecture. In the Evening School Mr. Kennedy Smith gained the Book Prize, second-year award in

quick and peaceful death. The jury returned a verdict of suicide during temporary insanity.

Mr. John Parker, a well-known artist, died at Brighton on Friday in last week. Mr. Parker was born in Birmingham nearly eighty years ago, and began his studies in the Birmingham School of Art. Removing to London, he received an appointment under the Department of Science and Art. For some years he taught with much success in the School of Art in Madeira, and on returning to London became master of the St. Martin's Art School, having as his pupils many successful painters and illustrators, among them being the late President of the Royal Society of Painters in Water Colours, Sir Ernest Waterlow, R.A. During these years Mr. Parker became a recognised painter in water colours. He was a member of the Royal Society of Painters in Water Colours and of the Royal Birmingham Society of Artists.

The death took place at Rugby on Thursday, at the age of fifty-six years, of Mr. Walter John Saville, who for many years had been associated with the firm of Messrs. Foster and Dicksee, builders and contractors. Mr. Saville was the Rugby manager, and also on the board of directors. He was also well known as a surveyor. Until recently he was chairman of the Rugby Master Builders' Association, and also chairman of the Rugby Benefit Building Society. The funeral, at Rugby on Monday, was largely attended.

The death has taken place at Ravensworth Terrace, Bensham, Co. Durham, of Mr. Tom Rule, who had attained the patriarchal age of ninety-three years. Mr. Rule was for many years a successful master plasterer at Gateshead. He entered public life in 1884, when he was elected a member of Gateshead Town Council. He sat for eleven years, and was chairman of the public libraries committee and the town improvement committee. In 1895 he resigned his seat. The deceased was made a justice of the peace in 1892, and continued as such until the time of his death, although physical infirmity kept him for some years from taking his seat on the Bench. Mr. Rule was for more than half a century associated with the co-operative movement, and for many years was chairman of the Gateshead Industrial Co-operative Society, while he also served on the directorate of the Co-operative Wholesale Society.

#### LEGAL INTELLIGENCE.

A DANGEROUS WALL.—At North Shields, Rebecca Scott, of Unskill Terrace, as the owner of land situated on the west side of Borough Road, North Shields, has been summoned, at the instance of Tynemouth Corporation, under the Town Improvements Act, on a charge of having failed to secure a certain wall upon her land, which was in a ruinous state and dangerous to the public, after notice in writing had been served upon her by the local authority requiring her to do the work necessary. The husband admitted that the wall had become dangerous, but said the work could not be done until the contractor, who was engaged upon the land immediately adjacent, had completed his undertaking. The bench ordered that the wall be put in a safe state within a month.

An art exhibition promoted by artists of the Artists' Rifles O.T.C. will be held at the Leicester Galleries between Saturday in next week, January 15, and Saturday, February 5.

The Public Health Committee of the Bethnal Green Borough Council, in a report to the council, again express concern at the delay in dealing with the Brady Street housing scheme in the borough. They are fully aware of the need of economy, but they are of opinion that it is false economy to withhold expenditure in urgent public health matters.

Nothing has yet been decided as to the date on which the deputation from the London Master Builders' Association will be received by the Prime Minister. The deputation will appeal to the Government to secure relief from onerous pre-war contracts, in particular building contracts. It suggests that a court should be created with powers to postpone the commencement of these contracts and building leases to the end of the war.

1914, when the Scholarship was taken by Mr. J. B. M. Walsh, who was also recently killed in action in Flanders.

The death on active service has taken place of Lieutenant Charles George Rodney Phillott, R.N., who for some years had been engaged upon submarine work. He was son of Mr. G. H. Phillott, of Messrs. Prothero, Phillott, and Barnard, ecclesiastical architects and surveyors, Cheltenham.

Late on Monday night in last week, in one of the rooms at the Horse Guards, Lieutenant Colonel Joseph Greenwood, a superintending inspector of works, Staff for the Royal Engineer Services, was found dead, having been hanged by a thick string from a piece of furniture. Colonel Greenwood, who was about sixty years of age, resided at 1, Bartram Park, Haverstock Hill, N.W. He was an architect and Fellow of the Surveyors' Institution, and was appointed a superintending inspector of works in April, 1907, being gazetted honorary lieutenant-colonel last August. For over twelve months he had been in failing health, and when he came to London in May last he had an attack of neurasthenia. His doctor ordered him to take a prolonged rest, but he refused to do so, and continued ill-health caused him to be seriously depressed. He was past the retiring age, and although he had been urged to retire on account of his health he declined to do so, preferring to continue as an example to younger men. Latterly it had been observed that he grew more depressed, and he worried greatly about a son who was interned in Germany on the outbreak of war. Colonel Greenwood's eldest son, Lieutenant J. F. B. Greenwood, of the 1st Royal Lancaster Regiment, was killed at St. Julien, near Ypres, on May 3 last. At the inquest held before Mr. Ingley Oddie, the Coroner for Westminster, on Friday, evidence was given by Mr. W. P. Ryan, Hampstead, and by Colonel R. Russell, Chief Engineer of the London District at the Horse Guards, showing that Colonel Greenwood had been depressed by his state of health, and that he suffered from neurasthenia and heart disease; he left long prayers in cipher reiterating his desire for a

# Correspondence.

## ARCHITECTS AS NOVELISTS.

To the Editor of THE BUILDING NEWS.

SIR,—With reference to the verses by Thomas Hardy reproduced in your issue of to-day, I have been wondering how many other celebrated novelists have commenced their careers as architects. I understand that Mr. William J. Locke—a most charming writer—was a member of our profession for many years, and there are doubtless many others. A list of these would be interesting. —Yours faithfully,

J. W. SIMPSON.

Berridge Street, Leicester.

December 29, 1915.

## THE HOUSING PROBLEM.

SIR,—Will you allow me to open the new year by inaugurating a discussion in your columns on this important subject?

The normal growth of house building since the Finance Act, 1909, has been interfered with, and most people and all architects and quantity surveyors hope that the speculating builder has been killed without hope of resurrection; and this decay of growth has been emphasised most unwisely since the war. It will, however, have to be faced in future, and perhaps the new era will be in the direction of extensively erecting garden cities. Everyone would like to see this enlarged upon; but does this movement really reach the class to be catered for? I think everybody agrees that after the war interest on money will be permanently increased, also the cost of building (along with other commodities) will be raised, not only with wages, but with the demand for every class of building material to make good the wastage of war, as well as the decay in the natural growth of building since 1909, so that it will be difficult to build a "garden city house," with laid roads, gas, water, and drains, to let at 10s. a week. If a good workman is earning £2 a week, he is no more justified in living in a house at 10s. a week than another man with £400 a year is in living in a house of £100 rental. But even if he will pay this rent, the man earning 40s. a week need not be looked after. He can save sufficient money to build his own dwelling with the help of his Building Society; but the casual labourer earning from nil to 20s. a week must be housed. It is a duty on citizenship. There are three courses open: (1) He must pay higher rents to attract capital, in preference to investment in war loans; (2) The corporation may build, but if corporations build, they should be restricted from letting houses at a rent insufficient to pay interest on the cost; for one must remember that corporations can borrow money at 2 per cent. less than most private owners, and it is unfairly pauperising people for a corporation to build houses worth 6s. rent and let them for 4s.—they have just as much right to build houses worth £60 rent and let them for £40, and to take the difference from the rates, and legislation should enforce such restrictions as interfering with private trade; or (3) There must be a drastic alteration in building by-laws; and I think, Sir, this is the most feasible principle. If you make a survey of the houses of any city or large town which have been built twenty five or thirty years, these houses are out of date. Not only that, but the district is out of date for the class of house. Yet, in accordance with the building by-laws, these houses are so well built that they will last for another hundred years or more, and it is impossible to ask the owner to scrap them. Still more impossible is it to show him that it is a profitable investment to scrap them and to build something else, as the rent has never been sufficient to pay both interest and a sinking fund. Yet, in any other trade, they would have been scrapped or remodelled long ago. Then, even if such solidity is necessary, fashions change. Why may I not build a house with rooms 6 ft. 6 in. high if I want? If I can't let it, I am the loser. If I can let it, it is because someone else wants it.

No doubt there will be wastage during the war, but in every previous European war.

refugees have come to England and have partly made good the casualties, and taught us new trades. Everyone wishes to see the wage earner comfortably housed in a decent, dry house (wherever practicable with a bath, but unless he will pay a much higher rent, or induce the actual builder to continue the good lesson taught to the munition worker of doubling his output, it resolves itself either into corporations building all houses at the cost of the ratepayer, or reducing radically their building restrictions, and to quote Mr. Nettledell's reasonable words that "local authorities should be content, and wisely content, to encourage others to build houses." Yours obediently,

W. H. WOOD.

Queen Square House, Leeds.

January 1, 1916.

## "EAGLE'S NEST."

SIR,—The value of timber framed houses for resisting strains due to subsidences is of course well known, but was possibly never better illustrated than in the case of "Eagle's Nest," a half timbered house in the Warren near Folkestone, the scene of the recent disastrous landslide. The experience through which the house passed, practically unscathed, is fairly well described in the enclosed cutting from "The Dover Express," of December 24. In a letter I have just received from Mr. Weston, the owner of "Eagle's Nest," he says: "The house has held together in a wonderful way, thanks to its good construction."

I venture to think that the circumstance may possess some amount of interest for many of your readers. Your obedient servant,

W. BEESTON.

10, Eastbrook Place, Dover.

December 31, 1915.

The only inhabited house in the affected area is known as "Eagle's Nest." It is the property of Mr. F. J. Weston, and stood on a picturesque plateau in the declivity of the Warren, about fifty feet below the level of the highway which skirts the summit. Mr. W. Beeston, architect, of Eastbrook Place, Dover, who designed the house four years ago for Mr. Weston, has been good enough to give us his impressions as to the movement which culminated in the house being deposited at a level far below its original position. He says that the plateau and house simply slipped from their moorings, and slid at an angle of from 50 to 60 degrees down the face of the declivity to a point about 60 feet lower. The descent of the lift in the cliff at Folkestone will exactly illustrate what occurred. The house went bodily down the slope, preserving all the while its horizontality, and came to rest at a point where the declivity becomes somewhat flatter. Viewed from the cliff top, the house appears absolutely normal; not a roof tile has shifted, the chimneys are intact, and the outline of the building apparently remains unaltered. A smaller building, containing a man's sitting room and bedroom, and originally connected with the main block by a short passage, did not fare so well. It was outpaced by the larger building, and in parting company was tilted, probably by the resistance of the connecting passage. The house is half timbered, and the astonishingly slight damage it has sustained illustrates afresh the value of timber framed houses for sites which are unstable by reason of geological conditions as in the present case, or in districts liable to subsidences by mining operations. A curious circumstance is that in the downward race the house appears to have overtaken some Scotch firs which formerly stood about eight or ten feet from the house, but which are now apparently almost buried up against its front wall. Mr. and Mrs. Weston were, fortunately, warned of danger by ominous cracking sounds and by small portions of plaster flying from the walls and ceilings. When they escaped from the house with a servant at six o'clock on Sunday evening last, and gained the lower levels of the Warren, the actual movement of the house had hardly begun. As they made their way towards Folkestone, the cliff tops near the "Valiant Sailer" Inn were sliding down into the depths of the Warren. *Dover Express*, December 24, 1915.

The late Mr. Henry Harner, of Belmont, Colleshill Road, Sutton Coldfield, formerly of Birmingham Road, Oldbury, builder, left a gross sum of £17,356.

## THE POSITION OF THE GERMAN CEMENT INDUSTRY.

The German cement industry, as our correspondent of *Empire* writes, has during the war, and the Haberstadt member of Commerce has on the subject made an appeal to the military authorities, consider the Central German cement industry in connection with their war aims. The Central German cement works, with an aggregate annual capacity of 20,000,000 barrels, and a capital of 20,000,000 marks, invested in the industry. The export of cement which under ordinary conditions amounted to about two-fifths of the total production, has entirely ceased, and the wants of the building industry are but small; during the present year a sale of not more than one-fourth of the average aggregate production has been realised. The war, certainly, has made matters materially worse, but even if the war had not happened a satisfactory outcome of the work of the Cement Union would hardly have been expected.

The adverse conditions from which the union suffers will also remain after the war. For years to come remunerative trading for the union will be handicapped by the forward sales of several works not belonging to the union. Amongst the unhappy Kartell agreements must be reckoned that with the blast-furnace cement works. The allowance of 10 pfennigs per barrel is out of all proportion to the harm done to the union by the way in which the blast-furnace cement works under sell the union. The position of the Cement Union is becoming so critical that the question of a premature dissolution of the union is invited serious consideration. Even if it would be possible to persuade the outside works to join the union, of which there seems very little prospect, this would only lead to the formation of new outside works. The aggregate production of the outside works in the autumn of 1915 may be put at about 1,000,000 barrels, which figure probably will be doubled by the end of 1916, a quantity which, with the production of the Kartell works, will suffice to supply the demand of the area in question, in any case approximately, the more so as the union of blast-furnace cement works and other outside concerns will probably grasp the lion's share of the increased business which may be expected after the war.

Mr. John Groom, surveyor to the Ebbw Vale Urban District Council, has resigned on account of ill-health.

Considerable additions are to be made to Haslar Hospital, Portsmouth, for the Admiralty. Mr. John Hunt, builder, of Church Road, Gosport, has the contract.

Plans for a new Baptist church at Parkway Street, Blackhill, Co. Durham, have been submitted by Messrs. Davison and Park of Newcastle, to the Benfieldside Urban District Council for approval.

Sir Charles Augustus Hartley, K.C.M.G., "The Father of the Dambee," the distinguished engineer, of 26, Pall Mall, S.W., was born at Hedworth, Durham, in 1825, and died on February 20 last, leaving an estate of £59,037 gross, with net personally £6,355.

During the gale on Wednesday morning the roof of a fine old half timbered house, the centre of Shrewsbury, known as "Ye Olde house of the Abbots of Inshilston," was stripped, the debris being blown down Butcher Row, an interesting record of Shrewsbury's open shop fronts.

The York Health Committee have been informed by the Local Government Board that they are unable under existing circumstances to sanction the borrowing of money for the Long Hall housing scheme, and the committee have now applied to the Ecclesiastical Commissioners to know if they would give up the option of purchase of the site for the war.

Mr. J. S. Brodie, borough engineer of Blackpool, is to be the next president of the Institution of Municipal and General Engineers for 1916-17, in succession to Mr. F. H. W. Lam, county engineer of Merseyside. Mr. Brodie will take over the presidency at the end of June next year, when the closing meeting of the institution will be held at Blackpool.



## Trade News.

### WAGES MOVEMENTS.

**LEEDS.**—The strike of Leeds joiners and carpenters, which had lasted over a month, came to an end on Thursday, when several hundred of the men returned to work. An immediate advance is granted of 3d. per hour, with another increase of 4d. per hour after six months. The dispute began with a demand from the men for a war bonus, and 2s. 6d. per week was suggested. The employers refused this on the ground that the building trade was so bad that such an amount could not be granted. The men will now have 10½d. per hour, rising to 16½d. on July 1 next. The strike has had a bad effect on building work in Leeds, which has chiefly been in the direction of industrial developments relating to munition work.

### WATER SUPPLY AND SANITARY MATTERS.

**MANCHESTER MAIN DRAINAGE SCHEME.** The work of the Manchester Corporation in connection with the main drainage scheme has been checked by the war and the Government's prohibition on expenditure. No new contracts have been let. Otherwise the outfall sewers would have been brought into use a year ago. The total length of the main sewers already completed is approximately eighteen miles. The sewers vary in diameter from 4 ft. to 15 ft. 3 ins. They are constructed with shale bricks lined with red engineering bricks. The whole of the work is in cement mortar, and is being carried out under the direction of the city surveyor, Mr. T. de Courcy Meade, who designed the scheme for the main drainage of the city of Manchester and certain of the neighbouring districts.

### TRADE NOTES.

**SWEDISH WOOD PRICES FOR 1916.**—At the annual meeting of the Swedish Exporters' Association, held at Stockholm on December 15, the prices to be asked for 1916 shipments were agreed upon by the shippers present. The quotations for next f.o.w. goods are, says the *Timber Trades Journal*, on the following basis:—For Gölle and Söderhamn thirds 3 by 9 £14 10s. to £15, and for thirds battens £12 10s. to £12 15s. For best Upper Gulf u.s. stocks:—11-in. deals at £15 10s. to £16; 9-in. deals at £13 10s. to £14; 7-in. battens at £12 10s.; and 6-in. battens at £12. For the smaller sizes in battens and scantlings, which have been so greatly in request and, in the absence of Finnish productions, will continue to be so, the high prices of £12 10s. to £12 15s. for 3 by 4½-in. and £12 for 2 by 4 and 2 by 3-in. are quoted. In broad boards the advance on battens is limited to 10s., 8 in. being at £13 10s., 7-in. at £13, and 6-in. at £12 10s. Planquettes are based on £11 to £11 10s. for 4½-in. and 10s. less for 4-in. No distinction is made in the prices for redwood and whitewood.

We have received a report that the lining of a 40,000 gallon reservoir in Bristol has been made perfectly watertight by the use of a water-proofed cement rendering. The architect has expressed his appreciation of the result. This is another instance of the efficiency of the powder Puddle for cement waterproofing.

Messrs. Pilkington and Co. have taken new offices at 17 and 15, Railway Approach, London Bridge, S.E., in order to be in closer touch with their business friends.

The late Mr. Arthur Rowland Barker, of Southgate, Middlesex, for more than forty years architect and surveyor to the diocese of Winchester, and a property owner in Birmingham and Coventry, left personally amounting to £27,856.

The citizens of Cleveland, Ohio, have formally sanctioned the expenditure of \$17,000,000 on the new Union passenger station, which will form the keynote of the group-plan of public buildings in that city. Messrs. Graham, Bruham, and Co., architects, Chicago, have already submitted tentative plans for the new building, and the more important details have been approved by the Cleveland city plan commission and the supervising architects of the group-plan, who are Messrs. Frederick Law Olmsted and Arnold W. Brunner, of Boston, Mass., and Mr. Frank B. Meade, of Cleveland. The station will be constructed, including changes in the level of tracks and arrangement of yard facilities, in three and half years.

## PROFESSIONAL AND TRADE SOCIETIES

**NATIONAL SOCIETY OF ART MASTERS.**—The twenty-seventh annual meeting of this society was held at the Victoria and Albert Museum on Thursday, the president, Mr. W. B. Dalton, of the Camberwell School of Art, occupying the chair. The secretary (Mr. Alfred Sauttleworth) read the report, which covered the last eighteen months. It stated that the total number of members was 402, an increase of ten, while the district members were 279. The election of officers for next year had resulted in Mr. W. H. Milnes becoming president, Mr. C. Ripper vice-president, and Mr. J. Harrison hon. treasurer. The president, in his opening address, said a fiat had gone forth that economy must be practised. The interests of the State demanded it, and local administrators had a free hand to curtail expenditure. It was much to be regretted that the Board of Education had not issued a circular distinguishing between real and false economies. In the main the action of public authorities, as far as it affected the permanent staffs of art schools, was beyond reproach, but there was a more serious point. In some cases opportunity was being taken of the war to enforce, on the plea of economy, policies which in normal times would not have the slightest chance of consideration. The aim of Germany, unlike ours, was not so much to produce decorative masterpieces as to influence the every-day things of life; in other words, to touch commerce as widely as possible. The movement must be combated, and the preparations for this after-war struggle ought to be going on now. Yet suggestions had been made for destroying the very means of education. We should want more and better organised education rather than less. It was impossible to over-estimate the place which schools of art should occupy in the new world that would follow the war. Mr. Frank P. Brown, Richmond, moved that, in assenting to the decision of the Board of Education to suspend the national art competition in 1916, the council of the society had not expressed the general opinion of the members. A free discussion followed. On behalf of the council it was stated that the decision criticised was unanimous, and that the council had received from the Board of Education an assurance that the suspension of the national competition was solely dictated by the exigencies of war and would not in any way compromise the future of the competition. Mr. Shelley expressed the opinion that every able-bodied man ought to be competing in the trenches. He simply could not teach the "loathsome young fellows" who were shirking their duty to the nation. Ultimately Mr. Brown's resolution was rejected by an overwhelming majority, only three hands being upheld in its support.

**SURVEYORS' INSTITUTE EXAMINATIONS.**—The Students' Preliminary Examination will be held on Wednesday and Thursday in next week, the 12th and 13th inst., and the professional examinations on March 27 and following days. The entry list closed on September 30 last.

The death is announced, at Shepherdswell, of Mr. F. S. Sargent, surveyor to the Dover Rural District Council.

The ratepayers of Auckland, New Zealand, have authorised the municipal authorities to raise a loan of £115,000 for the purpose of carrying out the following works:—Erection and equipment of market buildings, £55,000; establishment of a fish market, £20,000; water supply in Grey Lynn, £10,000; construction of drainage works at Remuera, £30,000.

The R.M.S.P. "Merionethshire" brought to London as part of its cargo a new flag-staff for Kew Gardens measuring 215 ft. and weighing 18 tons, which has been presented by the Government of British Columbia. It is one of the largest flagstuffs in the world, and is made from the trunk of a Douglas fir tree. The one which it replaces, having become decayed at the butt, was 159 ft. in height. The new flagpole was marooned for some days in Limehouse Reach owing to stress of weather, but safely completed its voyage to Kew without incident on Monday.

## Building Intelligence.

**NEWCASTLE-ON-TYNE.**—The last of the buildings forming the recent extension of the Newcastle City Lunatic Asylum have just been handed over. They comprise two villa blocks for forty patients each, nurses' home for fifty-six, and an isolation hospital for six patients. The villa blocks are built of brick walls faced with pressed bricks; there is a half-inch cavity behind the facing filled in vertically with Callender's bitubond; the walls of nurses' home and hospital are of stone, all the roofs are covered with Port Dinorwic slates. The general contractor was Mr. Alex. Pringle, of Gateshead, and among the various sub-contractors were:—Radiators, National Radiator Co., Hull; fires and mantles, Doulton and Co., Lambeth. The buildings have been designed and the erection superintended by Mr. John W. Dyson, architect, Newcastle, with Mr. George Cousins as clerk of works. The whole asylum has been taken over by the military, and is now the Northumberland War Hospital.

**WEST THURROCK.**—The rural district council of Orsett has recently built, on 2½ acres of land at West Thurrock, fourteen cottages for the working classes, in connection with a scheme for twenty-eight cottages, the completion of which has been postponed until after the war. The cottages are semi-detached, each standing on a plot of land having a frontage of 26 ft. and a depth of 116 ft. The accommodation in each case comprises entrance lobby and staircase, living room with range, scullery with small range, sink, copper with steam exhaust, and gas stove, larder, coal store, and three bedrooms. The cost per cottage was about £173, including road, drains, and fences, but not land. After allowance for repayment of loan, insurance, repairs, empties, etc., in accordance with the Local Government Board's schedule, the cottages are self-supporting at a rental of 5s. 6d. per week each, including rates. Mr. F. J. Winter, M.S.A., of Heygate Avenue, Southend-on-Sea, was the architect.

The partnership hitherto subsisting between T. Gosling and E. Stafford, contractors, at London Road, Hazel Grove, Chester, under the style of Gosling and Stafford, has been dissolved.

The death is announced at 23, Clive Avenue, Hastings, at the advanced age of 85 years, of Mr. Charles William White, formerly for many years of the Architects' Department, London County Council.

A National School was opened last week at Mullendreen, near Ballymena. It has been built from plans by Mr. E. Twist, of H.M. Board of Works, Dublin, the contractor being Mr. Daniel McKee, of Ahoghlin.

Mr. R. J. Glass has resigned his offices of borough surveyor and sanitary inspector of Maybole in order to take up the position of sanitary inspector under the Bathgate District Committee of the Laidlaw County Council.

Sculpture depicting Biblical scenes has been introduced into the niches and panels of the reredos of St. Illtyd's Church, Newcastle, Bridgend. Mr. E. M. Bruce Vaughan, F.R.I.B.A., of Cardiff, is the architect, and Mr. William Clarke, of Llandaff, the sculptor.

The new regulations of the London County Council for the construction of reinforced concrete buildings have now been passed by the Local Government Board and have been published in the *London Gazette* at an absolutely useless expenditure of £180, borne by the London ratepayer. The regulations, which come into force on New Year's Day, were given *in extenso* in our issues of July 14, 21, and 28, and August 4, 1915.

The principal municipal improvement in the centre of the city of Manchester effected during the past year has been the completion of the widening of Cross Street between King Street and the Cross Street Chapel, in front of the new premises of Lloyds Bank. A further widening in Cross Street between South King Street and John Dalton Street will shortly be carried out, as the demolition of the old buildings has now been completed, and the widening will be proceeded with forthwith.



## Our Office Table.

H.M. Office of Works recently summoned a conference, which was attended by representatives of the Admiralty and the War Office, and to which the directors of the great museums and art galleries were invited, to consider whether any further steps could be taken to safeguard national monuments against aircraft raids. The naval and military experts present unanimously agreed that no public building could by any structural device be protected against attack by bombs. Steps have, however, been taken to protect as far as possible the chief art treasures of the country. The care of ecclesiastical buildings actually in use has been specially excluded from the control of the Office of Works under the Ancient Monuments Consolidation and Amendment Act, and all responsibility devolves on the Dean and Chapter or other ecclesiastical authority.

A paper on the origin of the broad arrow was read by Mrs. Maunder before the British Astronomical Association at their meeting at Sion House, Victoria Embankment, on Wednesday evening. Mrs. Maunder, dealing with a Welsh manuscript, was anxious to discover when, by whom, and with what object the "broad arrow" was adopted as a British Government mark. The three strokes, unaccompanied by the horizontal one shown in ordnance bench marks, appeared to be of ancient and probably Druidic origin. They were said to have represented at one time the unvoiced name of the Deity, and to have had an astronomical origin. Mrs. Maunder had reason to believe that this may be confirmed by measurement of some of the Gorsedd stones in this country, and that the three straight lines represent the directions of the shadows of a vertical post at sunrise, noon, and sunset at the winter solstice when the Druidical year is said to have commenced. It has been suggested that Edward I. adopted the mark at the conquest of Wales, though Mr. Hollis claims to have heard that the adoption was made by the Secretary for War at the time of the American War of Independence. Mrs. Maunder is prepared to sift any evidence sent her on the subject.

The first Scottish National Conference on Housing was held in Glasgow on Monday under the auspices of the local Labour Party Housing Committee, and was attended by over 800 delegates. Mr. William Gallagher, of the Scottish Co-operative Society, the chairman, characterised the stoppage of the house-rent increases as a great victory for working-class solidarity. He was sorry the public had not acted similarly towards increases in the price of food, clothing, and coal.—Dr. Chalmers, the medical officer of health for Glasgow, said the quickest way to reduce the price of land in the cities was to cut down the height of tenement houses. The time had come when the abolition of the apartment houses should be considered.—Councillor Wheatley declared that the famine in houses in Scotland could be traced in a measure to combines among the manufacturers of building materials. Private building enterprise had failed. He outlined a labour scheme for free State house-building grants.

The Local Government Board have approved the scheme of the Hartlepool Corporation, under the Housing of the Working Classes Act, dealing with the large insanitary area in the centre of the town known as the Cleveland Street area. This area comprises 8,452 square yards, and, in carrying out the scheme, ninety-one families, representing 290 persons, will be displaced. The total estimated cost, including the purchase of the land, the purchase and demolition of the existing dilapidated property, the laying out of new streets, and the building of workmen's houses, is £15,000. The Board, in generally confirming the scheme, require that suitable dwellings shall be erected for the accommodation of not fewer than 220 persons of the working class.

Mr. T. H. Hartley, the borough engineer and surveyor of the borough of Colne, informs us that all capital expenditure here

is now held up owing to the Local Government Board's restrictions during the war. The borough engineer's staff is depleted owing to all men of military age having joined his Majesty's forces, therefore the ordinary routine work falls to a less number to execute. The development of the town having been necessarily arrested, the town-planning scheme (which has passed the first Local Government Board's inquiry, and permission has been granted to proceed) is being quietly pushed forward to its next stage. The area of the scheme is 877 acres. At the instance of the Ribbles Joint Committee plans and estimates for the construction of percolating beds at the sewage works are being prepared, so that when the war is over the work may proceed without delay. Also a scheme is being got out for the duplicating of some of the main intercepting sewers rendered necessary by the growth of the town. As far as tar roads are concerned, the war is no doubt affecting this work, as all expenditure has to be cut down to its lowest limits.

At the meeting of the St. Austell Board of Guardians, on Friday, Mr. F. W. Jenkin said the house committee had considered the question of making some acknowledgment to the master of the workhouse for his services as clerk of the works in connection with the erection of the new infirmary. Mr. Turner had saved the board about £400, and they recommended a gratuity of £50.—Mr. J. Collins, supporting, said that, but for the very strenuous times in which they were living, the committee would have been prepared to recommend the payment of a much larger gratuity.—Mr. J. Grose said they had paid the architect nearly £200, and he thought the architect might pay the master something out of that. He moved an amendment that Mr. Turner be thanked for all the work he had done.—Eleven voted for the amendment and sixteen for the recommendation.—Rev. F. Thomas moved, as a further amendment, that the gratuity should be £30, and this was carried by thirteen votes to ten.

Mr. R. J. Glass, burgh surveyor and sanitary inspector of Maybole, has been appointed sanitary inspector to the Bathgate District Committee of the Linlithgow County Council.

Mr. William Mackenzie, county sanitary inspector, has been appointed sanitary inspector and housing officer for the Western District of the Ross and Cromarty County Council.

Sir James Stuart Davy, of Winter Green, Pyrford, Surrey, from 1905 to 1913 Assistant Secretary and Chief General Inspector of the Local Government Board, who died on November 16, aged fifty seven, left property valued at £1,074 gross.

Mr. S. B. Ashworth, M.S.A., the architect to the Stoke-on-Trent Education Committee, has received a commission in the Royal Garrison Artillery, and is undergoing training at Hemel Hempstead. Mr. F. Morrall Maddox, his chief assistant, who is ineligible for military service, will take charge during his absence.

The Waterworks Committee of the City Council of Cardiff have adopted a scheme for supplementing, when necessary, the supply of water from Taff Fawr by pumping from the river Ely. This decision arose out of a report presented to last week's meeting of the committee by Mr. C. H. Priestley, the water engineer, on the desirability during coming summers of being in a position to supplement the supply from Taff Fawr, not only if the time when a drought was most severely felt, but so that the pumping should begin when ever thought desirable at the commencement of a dry season.

A series of tables has been prepared by Mr. Alexander Walker, assessor for the city of Glasgow, dealing with the valuation of the city in various aspects. For the year 1912-13, the first year of the Glasgow Boundaries Act, 1912, the total valuation of the burgh was £7,307,672 10s. 11d. made up as follows:—(1) In the area of the burgh before extension, £6,002,395 1s.; (2) in the area added to the burgh, £1,305,277 9s. 11d. The total valuation for the year 1915-16 is now shown to be £7,567,092. This is an increase over the previous year of 13,491, as compared with an increase last year of 80,276 over the year 1913-14.

## CHIPS.

The Government of India has made a grant of Rs. 10,000 for the restoration of the buildings of the old Fort St. George at Delhi.

The New South Wales Government proposes to establish cement works in the Murrumbidgee district at an estimated cost of £200,000.

The Bristol City Docks Committee are making application at the next council meeting for sanction to spend £10,000 on a large excavator.

The corporation of Kingston-on-Thames have purchased about five acres of land in Denmark Road, at a cost of £3,400, as a site for the Tiffin school.

Extensive renovations are being carried out at the Roman Catholic Church at Cliford, under the superintendence of Mr. Ward, Hill Street, Newry.

A tower is about to be added to St. Catherine's Church, Holme, Cumberland, from plans by Mr. J. H. Martindale, F.R.I.B.A., Castle Street, Carlisle.

Mr. Charles Bean King, of Froggnal, Hampstead, head of C. B. King, Limited, builders, died on October 7, aged eighty, leaving unsettled property of the value of £32,433.

Colonel P. Owen, Director General of Public Works in Australia, who has been intimately connected with the building of the new federal capital at Canberra, recently paid a visit of inspection to New Delhi, accompanied by the Chief Commissioner and by Mr. Kellings, chief engineer, of New Delhi. Mr. E. L. Lutyens, A.R.A., F.R.I.B.A., has also arrived in Delhi, on a visit of inspection.

Mr. Frederick Obant, principal of the firm of Messrs. Thomas Obant and Son, builders, of Bradford, died last week at his residence, in Leeds Road, Thackley, aged 61 years. The firm built many churches, the markets and corporation electricity works at Bradford, and the post office at Huddersfield and Leeds.

At an inquest at Islington, on Monday, on George Broomhead, aged eighty-five, a retired master builder, who was knocked down by a motor-omnibus when crossing Hornsey Road, the driver stated that he was driving at eight miles an hour and sounded his hooter, but the old gentleman continued to walk on without looking, and was knocked down although the brakes had been supplied. A verdict of "Accidental death" was returned.

At the annual meeting of the Washington State Chapter of the American Institute of Architects, held at Seattle, the following officers for the ensuing year were elected:—President, Mr. Arthur L. Loveless, Seattle; first vice-president, Mr. Joseph S. Cote, Seattle; second vice-president, Mr. George Gove, Tacoma; third vice-president, Mr. Albert Held, Spokane; secretary, Mr. Daniel R. Huntington, Seattle; and treasurer, Mr. Ellsworth P. Storey, Seattle.

The rural district council of Thurles have received an intimation from the Local Government Board stating that they had finally decided to exclude from the council's housing scheme thirty-six out of the sixty sites, and they therefore decided to withhold £4,630 of the loan of £10,000 applied for. The Board adds that if those cottages were to be built the expense would have to be met out of the current revenue or by a supplemental loan to be obtained in the open market, subject to their sanction.

Four diocesan surveyors have been appointed to the Diocese of Winchester, as follows:—Mr. B. D. Cancellor, for South Hampshire; Mr. N. C. H. Nisbett, for North Hampshire; Mr. H. Sidelotham, for Surrey; and Mr. J. F. Maltgate, for Isle of Wight. In the Diocese of Southwell the following have been appointed for a term of five years: Messrs. G. F. Barnes, Chesterfield; P. H. Curry, Derby; T. H. Thorpe, Derby; G. C. Aitchison, South Collingham; A. E. Hoare, Nottingham; W. H. Pain, Bingham.

In the Repertory Theatre, Birmingham, the parterre sloping from the stalls level to the circle level takes the place of the usual pit and stalls. This gives a good view of the stage from every part of the "house". At the back there are two boxes approached from the landing of the main staircase, and above there is a balcony which seats about 200 people. The stage equipment includes a curved hemisphere at the back and indirect lighting in addition to ordinary lighting. An apron stage has been arranged with access for the players by small doors at the sides of the proscenium opening. Underneath is the orchestra. The architect was Mr. S. N. Cooke, F.R.I.B.A., of Colmore Row, Birmingham.

The Welsh Harp Hotel, Commercial Street, Aberdare, is about to be converted into shop premises and billiard hall. The architect is Mr. T. Roderick, of Ashbrook House, Aberdare.

The Berlin Chamber of Commerce, in its yearly report, claims that, except in the building trades, the situation at the end of 1915 is more satisfactory than anybody expected a year ago.

Mr. A. Barnett Brown, M.S.A., F.S.I., of Norfolk Street, Strand, a Grand Lodge officer, has been appointed Junior Warden of the newly formed City of London National Guard Lodge, No. 3757.

Mr. P. R. Gibbs, divisional surveyor for No. 1 District under the Worcestershire County Council, has been granted a commission as second lieutenant in the 14th Worcestershire Regiment, Pioneer Battalion.

The Senate of the Queen's University, Belfast, have decided to enlarge the bacteriological laboratory. The building is to be extended fifty feet. The architect is Mr. R. M. Close, A.R.H.A., Donegall Square North, Belfast.

Mr. Arthur John Cotterell, late engineers in chief of the Egyptian State Railways, of Cromwell Road, South Kensington, died on December 22 in Switzerland. He was a son of the late Dr. Cotterell, Bishop of Edinburgh.

Mr. Victor Wilkins, M.S.A., is the new quartermaster of the 43rd London V.A.D., Westminster Division (A.A.), and Mr. C. McArthur Butler, the secretary of the Society of Architects, is section leader of No. 2 Section.

Mrs. Eleanor Thurlby has been appointed assistant sanitary surveyor to the Wortley Rural District Council, to act during the absence of her husband, Mr. F. Thurlby, the sanitary surveyor, who has joined the London Rifle Brigade.

A new workhouse infirmary at Penhiwyn, near Neath, Glam., built at an outlay of £36,000 for the Neath Board of Guardians, has been formally opened. Mr. J. Cook Ross was the architect, and Messrs. Evan Thomas and Sons, of Neath, were the builders.

Sir Archdale Earle, chief commissioner of Assam, has laid the foundation stone of a Pasteur Institute at Shillong. The funds at present available amount to £12,541, and for the research part of the scheme the Indian Research Fund Association have granted £1,667.

Mr. Michael Kerrigan, J.P., builder, of Perth, died on Tuesday night at his residence in Atholl Street in that city. He had erected many prominent buildings in Perth, and also in Perthshire and Fifeshire. He was the recognised leader of the Roman Catholics and of the Irish Nationalist party in Perth.

Tom Mostyn's picture, "The Garden of Peace," which was prominently hung in the last Royal Academy Exhibition, has been purchased by a Liverpool citizen from the autumn exhibition in the Walker Art Gallery in that city, and has been presented by him to the Liverpool Corporation to add to their permanent collection.

The death on Thursday of Mr. John Snare, one of the flint-knappers at Brandon, West Suffolk, has brought to a close a long family association with this prehistoric industry. The family first became connected with flint knapping or breaking early in the fourteenth century, and ever since the business has passed from father to son.

Sunbury House, Sunbury-on-Thames, was totally destroyed by fire on Friday. The house, which was reputed to have been built by Henry VIII. for Anne Boleyn, contained valuable paintings and woodwork, and the principal walls were lined with fine oak paneling. Of late years the house had been divided into residential flats.

The next ordinary meeting of the Surveyors' Institution will take place at 5 p.m. on Monday next instead of 8 p.m. This change was made for the convenience of members who do not wish to stay in town while the present war conditions as to dark streets and late trains prevail. At this meeting "Some Notes on Reinforced Concrete" will be read by Mr. R. M. Kearns, F.S.I.

The borough surveyor of Colne, Lancs., reports that the corporation's town planning scheme has passed the first inquiry of the Local Government Board, and permission has been granted to proceed. The area of the scheme is 877 acres. Owing to the depletion of the staff and the restrictions of the Local Government Board, road works are cut down to their lowest limits.

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Edinham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

\*Drawings of selected competition designs, important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc.—we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

Telephone: Gerrard 1291.

Telegrams: "Timeserver, Estrand, London."

## NOTICE.

Bound copies of Vol. CVIII. are now ready, and should be ordered early (price 12s. each, by post 12s. 10d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLVI., XLIX., LIII., LXL., XLIV., XLV., XLVI., XLVII., XLVIII., XLIX., LXX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., XCVII., XCVIII., XCIX., C., CI., CII., CIII., CIV., CV., CVI., and CVII. may still be obtained at the same price; all the other bound volumes are out of print.

## BACK ISSUES.

Most of the back issues are to be had singly. All back issues over one month old will be charged 6d. each, postage 1d. Subscribers requiring back numbers should order at once, as they soon run out of print.

Handsome Cloth Cases for binding the BUILDING NEWS, price 2s., post free 2s. 6d., can be obtained from any Newsagent, or from the Publisher, Edinham House, 1, Arundel-street, Strand, W.C.

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\*The special rate to Canada is £1 3s. 10d. = 5dols. 80c. for 12 months, and 11s. 11d. = 2dols. 90c. six months. Our Direct Subscription Agents for Canada are Messrs. Sells, Ltd., 302, Shaughnessy Buildings, McGill Street, Montreal, who will receive Subscriptions, £1 3s. 10d. per annum, on our account.

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Advertisements for the current week must reach the office not later than 3 p.m. on Tuesday. Front-page advertisements and alterations or stop orders for serial advertisements must reach the office by first post on Monday to secure attention.

RECEIVED.—S. E. S. Dept.—J. R.—H. H. S. Co., Ltd.—W. H. H., Ltd.—I. C. S.—H. D. P.—J. M. W. L.—J. H. T. and Co.

PRINCE.—Yes.

J. R. S.—Please send.

W. M. J.—Yes; if the usual facilities are afforded.

LEONARD CROWFOOT.—It is very possible, but only to be ascertained after competent local legal advice. In not a few cases the site boundaries of such adjacent buildings are, to say the least, doubtful, and it is possible that the old wall was actually on the adjoining property. If this is not so, we do not think he can be compelled to set back.

## TO ARMS!

4TH BATTALION CENTRAL LONDON VOLUNTEER REGIMENT.

ORDERS FOR THE WEEK, BY SUB-COMMANDANT C. STANLEY PEACH (Acting Commandant).

OFFICER FOR THE WEEK.

Platoon Commander L. C. Hughes Hallett.

NEXT FOR DUTY.

Platoon Commander J. R. G. Williamson.

GENERAL PARADE.

Saturday, 15th inst., at Chester House, 2.45 p.m.

SCHOOL OF ARMS.

Tuesdays, 6 to 7 p.m.

LECTURE.

Thursday next, 6th inst., at Chester House, 5.45 to 6.45 p.m., by Company Commander E. J. Castell, for Officers and N.C.O.s.

DRILLS AND PARADES.

For details of all drills and parades see notice board at headquarters.

ENTRENCHING PARADE.

Sunday next, 9th inst., Victoria Station (L.B. and S.C. Railway), indicator board, 8.35 a.m. sharp, for special train, 8.50 a.m. Uniform, haversacks, and water bottles. Mid-day rations to be carried. Return to town about 6.15 p.m. Railway vouchers will be provided.

By order,

MACLEOD YEARSLEY, Adjutant.

CORRESPONDENCE.

All correspondence should be addressed to the Orderly Room.

DEUT. HEADQUARTERS AND ORDERLY ROOM, Chester House, Eccleston Place, S.W. January 5, 1916.

## MEETINGS FOR THE ENSUING WEEK

WEDNESDAY (Today).—Institute of Sanitary Engineers. Presidential Address. Cannon Hall, Westminster. 7.35 p.m.

MONDAY.—Surveyors' Institution. "Some Notes on Reinforced Concrete," by R. M. Kearns, F.S.I. 5 p.m.

Architectural Association. Special General Meeting, at 18, Tufnell Street, S.W., to discuss and confirm proposed sale of the premises and transfer of the Royal Architectural Museum to South Kensington. Presentation of Council's Report and Balance-sheet. 6 p.m.

Clerks of Works Association. Meeting at Carpenters' Hall.

TUESDAY (Jan. 11).—Institution of Civil Engineers. "The Electric Locomotive," by F. W. Carter. 5.30 p.m.

WEDNESDAY (Jan. 12).—Manchester Society of Architects. "The Builders' Point of View," by James Brown. 6.30 p.m.

THURSDAY (Jan. 13).—Royal Society of Arts. "The Romance of Indian Surveys," by Sir Thomas H. Holdich. 4.30 p.m.

Society of Architects. Annual Meeting. Presentation of Council's Report and Balance-sheet. 5 p.m.

FRIDAY (Jan. 14).—Town Planning Institute. "Open Spaces and Town Planning Schemes," by Lawrence W. Chubb. 8 p.m.

Glasgow Architectural Craftsmen's Society. "Central Heating Apparatus for Small Residences and Apartment Houses," by P. S. Taylor. 7.45 p.m.

Among the men excluded in the survey of reserved occupations in the list published on Thursday, supplementary to those issued on November 22 and 29 and December 20, are the following:—Limestone quarries mainly engaged in supplying iron and steel works—Foremen, gotters or quarrymen. Cement manufacture—Departmental managers, foremen, getters or quarriers, burners or kilnmen, millers, Timber (imported) trade—Foremen, sawyers, crosscutters. Packing case making—Sawyers, case-makers (handwork only). Pile fabric manufacture—Foremen and overlookers, knife-men, battens, and tenterers. A further list is being prepared by the Committee on Reserved Occupations.

A special committee of the Haddam corporation are considering how to carry out the promise they have given to the Borden Dyes Co., Limited, to provide adequate housing accommodation for the 250-300 workpeople whom that concern expects to employ.

**OGILVIE & CO.**

Telephone DALSTON 1388.  
Many years connected with  
the late firm of W. H.  
LASCELLES & CO., of  
Bunhill Row.

**Mildmay Avenue, ISLINGTON, N.**

**EXPERTS in HIGH-CLASS JOINERY.**

**ALTERATIONS & DECORATIONS.**

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FREE.

FOR

**Olivers'**

**Seasoned**

**Hardwoods,**

APPLY TO—

**WM. OLIVER & SONS, Ltd.,**

**120, Bunhill Row, London, E.C.**

GUARANTEED TO SATISFY.

PLAYGROUNDS AND CARRIAGEWAYS.

**"RELI"**

**ASPHALT CONCRETE PAVING.**

EST. 1860.

**W. SHEPHERD & SONS, MILKSTONE, ROCHDALE.**

### TENDERS.

\*. Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

**AYR.**—For extensions at the electricity works, for the town council. Accepted tenders:—

Mason work:—

Miligan, D. and J. . . . . 1667 2 1

Plaster work:—

Miller, W. . . . . 228 7 0

Joiner work:—

Miligan, D. and J. . . . . 91 0 0

Plumber work:—

Auld, W., and Son . . . . . 31 0 0

**DELVES.**—For repairs to borough property, for the town council:—

Maslen, L., and Sons . . . . . 470 3 0

(Recommended for acceptance.)

**EASTBOURNE.**—For building an aviation shed and mess-room at the Crumbles, for the Eastbourne Aviation Co.:—

Peetless, Dennis and Co., Eastbourne (accepted).

**ERITH.**—For supply of a motor fire engine, for the urban district council:—

Dennis Bros., Ltd., 4875, with ladder attached at a cost not exceeding £20 (recommended for acceptance).

**ILFORD.**—For supply of triple concentric cable, with joint-boxes, for the urban district council:—

Henley's Telegraph Works Co., Ltd., London (accepted) . . . . . £2319 8 10

**LETCHWORTH.**—For erection of blocks of houses in connection with the Letchworth Housing Scheme, for the Hitchin Rural District Council. Accepted tenders:—

Blocks 6 to 11:—

Souster and Son . . . . . £7,230 0 0

Blocks 1 to 5:—

Jeffs Bros. . . . . 4,850 0 0

Blocks 12 to 14:—

Knob, J. . . . . 1,290 0 0

Blocks 15 to 17:—

Souster and Son . . . . . 3,047 0 0

**NORTHAMPTON.**—For alterations to and equipment of a room at the borough accountant's office for the use of the education committee's finance clerk, for the corporation:—

Beardmore and West . . . . . £94 16 0

(Recommended for acceptance.)

**STAPLEHURST.**—For the repair and maintenance of the stonework in the dwellings of the borough council:—

Dreyfus, A., and Co., Albion Grove, Barnsbury (accepted).

**STAPLEHURST.**—For the provision of a sewage wagon for the parish of Staplehurst, for the Maidstone Rural District Council:—

Gates, R., Gravesend (accepted) £131 11 0

**SOUTHAMPTON.** For proposed additional dining-room accommodation, No. 98, Above Par Street, Southampton. Mr. William Burroughs Hill, Southampton, architect:—

Nash, William, London . . . . . £1,344 0 0

Cawte, Henry, Southampton . . . . . 1,178 0 0

Stevens, H., and Co., Southampton . . . . . 1,163 0 0

Jenkins and Sons, Southampton 1,126 0 0

\*Provisionally accepted.

**WESTMINSTER.**—For the maintenance of the carriageway of Victoria Street during five years, for the city council. Per annum:—

Linmer Asphaltic Paving Co., Ltd. (accepted) . . . . . £1,149 0 0

A large factory is to be erected at Ashted, Surrey. The building contract has been secured by Messrs. G. E. Wallis and Son, Broadmead Works, Maidstone.

## LIST OF TENDERS OPEN.

### BUILDINGS.

**Jan. 5.**—Wooden Assembly Hall at Intermediate Schools, Llanelli.—J. H. Blake, Clerk, 6, John Street, Llanelli.

**Jan. 7.**—Steel-framed Corrugated Iron Building, Brick-lined Engine Well, and Appurtenant Works, Barking.—For the Urban District Council.—R. A. Lay, A.M.I.C.E., Acting Surveyor, Public Offices, Barking.

**Jan. 7.**—Removing Two Temporary Schools from Adwick-le-Street to Askern, Yorks.—For the West Riding Education Committee.—The Education Architect, County Hall, Wakefield.

**Jan. 8.**—Cottage Dwelling Houses, between East Crawford Street and Carwood Street, Greenock.—For the Corporation.—The Borough Surveyor, Municipal Buildings, Greenock.

**Jan. 10.**—Store, Larne.—For the East Antrim Co-operative Agricultural Society, Ltd.—W. J. F. Donald, Hon. Secretary, 30, Pound Street, Larne.

**Jan. 10.**—Gatekeeper's Cottage, Greenfields Crossing, between Neway and Gogaraghow.—For the Great Northern (Ireland) Railway Co.—T. Morrison, Secretary, Amiens Street Terminus, Dublin.

**Jan. 12.**—Operating Room at South-Western Fever Hospital, Landor Road, Stockwell, S.W.—For the Metropolitan Asylums Board.—W. T. Hatch, M.I.C.E., M.I.M.E., Engineer-in-Chief, Embankment, E.C.

**Jan. 24.**—Seventy-eight Houses, on three sites, Irlam.—For the Urban District Council.—R. H. Winterbottom, Surveyor, Council Offices, Irlam, Lancs.

### ELECTRICAL.

**Jan. 5.**—Hard-drawn Copper-clad Steel Wire and Jointing Sleeves (5,500), Brisbane.—For the Deputy Postmaster-General.—The High Commissioner for the Australian Commonwealth, 72, Victoria Street, S.W.

**Jan. 5.**—Low-tension Switchboard, Stuart Street Station, Manchester.—For the Electricity Committee.—S. L. Pearce, Chief Electrical Engineer, Dickinson Street, Manchester.

**Jan. 14.**—Electric Lighting of S. Pedro do Sul, Portugal.—For the Municipal Authorities.—The Municipal Authorities, S. Pedro do Sul, Portugal.

**Jan. 19.**—Multiple Switchboard at Telephone Exchange, Adelaide, South Australia.—For the Deputy Postmaster-General.—The Commercial Intelligence Branch, Board of Trade, 73, Basinghall Street, E.C.

**Jan. 21.**—Supply Meters and Various Electrical Supplies and Materials (One Year), Islington, N.—For the Borough Council.—The Electrical Engineer, Eden Grove, Holloway, N.

**Jan. 26.**—Telephone Instruments and Galvanised Iron Wire, Brisbane, Queensland.—For the Deputy Postmaster-General.—The Commercial Intelligence Branch, Board of Trade, 73, Basinghall Street, E.C.

**Jan. 26.**—Electric Power Plant, Naval Arsenal, Cadix.—Negociado Quinto de la Segunda Sección del Estado Mayor Central de la Armada, Ministerio de Marina.

**Jan. 31.**—Three Freight Car Transfers, Sydney, N.S.W.—For the Harbour Trust Commissioners.—The Commercial Intelligence Branch, Board of Trade, 73, Basinghall Street, E.C.

**Feb. 23.**—Receiver and Wheatstone Instruments, Brisbane.—For the Postmaster-General's Department.—The Commonwealth Offices, 72, Victoria Street, London, S.W.

**March 14.**—40-kw. Hydro-Electric Generating Set and Switchboard, Raetihi, New Zealand.—For the Corporation.—H. W. Clinie and Son, Raetihi, New Zealand.

### ENGINEERING.

**Jan. 5.**—Pump Repairs, Portland.—For the Waterworks Committee.—A. S. Lilly, A.M.I.C.E., Engineer and Surveyor, Council Offices, New Road, Portland.

**Jan. 8.**—Concrete Works for strengthening West Breakwater, Scrabster Harbour, Thurso.—For the Trustees.—The Clerk, Traill Street, Thurso.

**Jan. 10.**—Steel Footbridge over Railway at Motherwell, N.B.—For the Caledonian Railway Co.—The Engineer, Buchanan Street Station, Glasgow.

**Jan. 11.**—Resetting Lancashire Boiler at Sewage Works, Tottenham.—For the Tottenham and Wood Green Joint Drainage Committee.—H. F. Wilkinson, A.M.I.C.E., Acting Consulting Engineer, Fown Hall, Tottenham, N.

**Jan. 12.**—Coal-Handling Plant, Electricity Works, Darlington.—For the Corporation.—H. G. Stevenson, Town Clerk, Darlington.

**Jan. 12.**—Two Water-tube Boilers, Newcastle, N.S.W.—For the New South Wales Government Railways Department.—The Electrical Engineer, 61, Hunter Street, Sydney, N.S.W.

**Jan. 28.**—Electric Tramway in Monte de Pardo District of Madrid.—Dirección-General de Obras Públicas, Ministerio de Fomento, Madrid.

**Jan. 29.**—Secondary Railway from Alente to Alcoy, Spain.—Dirección-General de Obras Públicas, Ministerio de Fomento, Madrid.

**Feb. 7.**—Centrifugal Pumps and Electric Motors, No. 1 Pumping Station, Ultimo, Sydney, N.S.W.—For the Sydney Metropolitan Board of Water Supply and Sewerage.—The Commercial Intelligence Branch, Board of Trade, 73, Basinghall Street, E.C.

**Feb. 9.**—Filtering Plant at Public Baths, Dunedin, New Zealand.—For the City Council.—The City Engineer, Town Hall, Dunedin, N.Z.

**Feb. 19.**—Strategic Railway from Estada and Tamarte to Balagner, Spain.—Dirección-General de Obras Públicas, Ministerio de Fomento, Madrid.—The Commercial Intelligence Branch, Board of Trade, 73, Basinghall Street, E.C.

**May 31.**—Secondary Railway from Palencia to Aranda de Duero, Spain.—Dirección-General de Obras Públicas, Ministerio de Fomento, Madrid.

**June 30.**—Railway from Potosí to Sucre, Bolivia.—For the Bolivian National Congress.—The Commercial Intelligence Branch, Board of Trade, 73, Basinghall Street, E.C.

### FENCES AND WALLS.

**Jan. 8.**—Sheep Hurdles (60 doz.), with Shores, Warminster.—For the Urban District Council.—H. J. Wakeman, Clerk, Council Offices, Warminster.

### FURNITURE.

**Jan. 7.**—Furnishing of New Cottages at the Cottage Homes, Bridgend.—For the Bridgend and Cowbridge Guardians.—R. H. Cox, Clerk, Union Offices, Bridgend.

### PAINTING.

**Jan. 6.**—Interior of Wesleyan Church, Faringdon Street, Swindon.—A. G. White, 113, Bath Road, Swindon.

**Feb. 9.**—Exchange Station, Liverpool, and Engine Sheds at Sandhills and Ormskirk.—For the Lancashire and Yorkshire Railway Co.—The Engineer's Office, Hunt's Bank, Manchester.

**Feb. 9.**—Fazakerley Junction to Kirkdale, Aintree, and North Mersey.—For the Lancashire and Yorkshire Railway Co.—The Engineer's Office, Hunt's Bank, Manchester.

**Feb. 9.**—Westhoughton to Kirkby, Crow Nest Junction to Horwich Fork Junction, and Hindley and Pemberton Loop Line.—For the Lancashire and Yorkshire Railway Co.—The Engineer's Office, Hunt's Bank, Manchester.

**Feb. 9.**—Blackburn to Hellifield and Horrocksford Branch.—For the Lancashire and Yorkshire Railway Co.—The Engineer's Office, Hunt's Bank, Manchester.

**Feb. 9.**—Blackburn to Colne.—For the Lancashire and Yorkshire Railway Co.—The Engineer's Office, Hunt's Bank, Manchester.

**Feb. 9.**—Passenger and Goods Stations, Bolton, and Engine Shed, Lower Darwen.—For the Lancashire and Yorkshire Railway Co.—The Engineer's Office, Hunt's Bank, Manchester.

**Feb. 9.**—Chorley to Cherry Tree.—For the Lancashire and Yorkshire Railway Co.—The Engineer's Office, Hunt's Bank, Manchester.

**Feb. 9.**—Cheetham Hill Junction to Bradley Fold Junction, and Engine Shed, Radcliffe and Agecroft.—For the Lancashire and Yorkshire Railway Co.—The Engineer's Office, Hunt's Bank, Manchester.

**Feb. 9.**—Stebbins to Bacup.—For the Lancashire and Yorkshire Railway Co.—The Engineer's Office, Hunt's Bank, Manchester.

**Feb. 9.**—Low Moor to Mirfield and Heckmondwike to Thornhill.—For the Lancashire and Yorkshire Railway Co.—The Engineer's Office, Hunt's Bank, Manchester.

**Feb. 9.**—Mirfield to Wakefield and Dewsbury Branch.—For the Lancashire and Yorkshire Railway Co.—The Engineer's Office, Hunt's Bank, Manchester.

**Feb. 9.**—Wakefield to Knottingley, Methley, and Oakeshaw Branches, and Crofton Junction to Shafton Junction.—For the Lancashire and Yorkshire Railway Co.—The Engineer's Office, Hunt's Bank, Manchester.

### ROADS AND STREETS.

**Jan. 17.**—Works and Materials (One Year), Kingston-on-Thames.—For the Surrey County Council.—The County Surveyor, County Hall, Kingston-on-Thames.

**Jan. 24.**—Surface Tarring, various Main Roads (One Year), Bury St. Edmunds.—For the West Suffolk County Council.—W. L. Jenkins, A.M.I.C.E., Shire Hall, Bury St. Edmunds.

### SANITARY.

**Jan. 13.**—Stoneware Pipe Drain (12 in.), Royal Edward Dock, Avonmouth.—For the Bristol Docks Committee.—T. A. Peace, Engineer, Cumberland Road, Bristol.

### STEEL AND IRON.

**Jan. 10.**—Steel Constructional Work in extension of Power House, St. Pancras, N.W.—For the Borough Council.—C. H. F. Barrett, Town Clerk, Town Hall, Pancras Road, N.W.

**Jan. 12.**—Steel Rails (2,000 tons of 60 lb.), Melbourne.—For the Agent-General of Victoria, Australia.—John Coates and Co., Consulting Engineers, 115, Victoria Street, S.W.

(Continued on page 319.)

# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

Effingham House.

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### OUR ILLUSTRATIONS

The Institute of Chemistry of Great Britain, Ireland, Russell Square, London, W.C. 1, and plan with working drawing of the entrance front. Sir John J. Burnet, F.R.I.B.A., F.R.S.A., F.R.I.B.A., Architect.

"The Triumph of Peace," Royal Academy Silver Medal Prize Decoration design for a Public Building, by Mr. James Cadie Pollard.

### A GARAGE AND MOTOR REPAIR SHOP.

The investment of capital in engineering works and garages equipped with accurate machine tools is justified at the present time, and offers opportunities to the architect and builder in a direction the powers that be cannot afford to discourage. Our sketches illustrate a small garage and repair shop, and are sufficiently worked out to form a basis for planning such buildings.

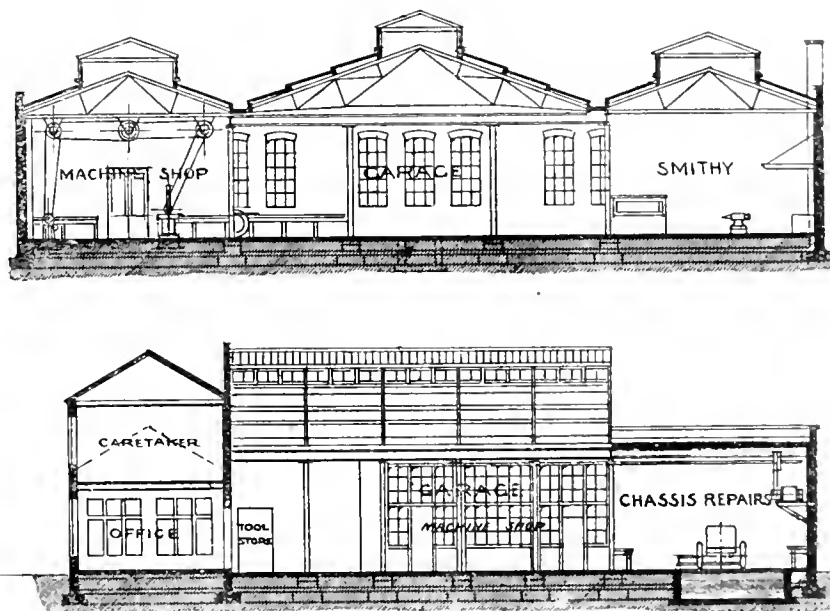
The building illustrated is intended more for a repair business than for car storage and mere garaging. In the plan we have emphasised one essential feature—the inspection pit axially with the main entrance. Another need provided for is that the attendant in the shop may also act as storekeeper, giving out tools, etc., to men engaged. In most localities there will be a brisk trade in accessories, which customers will appreciate. It is also assumed that the business done will be of such scale and volume that an adequate office with clerical staff and manager's room will be necessary, while the opportunity is made good of building above these apartments for a caretaker. The entrance to the works is perhaps unnecessarily wide, but an imposing archway is a good advertisement for the business, giving a wide view into the garage premises.

A shop for such a business as is here considered will be either suitable with counter, as shown, or for a larger business will not be so fitted, because a whole car, or cars, will be exhibited. In any case it would be well in planning such premises to provide wide doors both to garage and to the street, or to leave straight joints for the former should a larger door be contemplated at any time. The shop shown is 44 ft. by 20 ft., and is intended for the accommodation, display, and sale of tires and other motor accessories. Adjoining the shop is a tool store, a very necessary provision. In the present scheme we assume an attendant whose primary duty is attendance on customers, but who will also manage the tool store. The tool room, therefore, is adjacent to the machine shop, from whence will come the biggest demand for odd tools, etc. It is not, here, a very large place, but is well provided with shelves and lockers. It is entered from a door in the shop, and should also have a door into the garage. It measures 19 ft. by 19 ft. The sale shop is a one-story building, equal in area to the offices, which have a stairway giving approach to the caretaker's rooms; and, should none such be required, store room will always be useful. The plan at the front

with an effective, bold entrance archway. The overall interior measurement of the office block is 44 ft. by 20 ft.

The garage proper, or main works area, into which cars enter and from which they may be manoeuvred to other positions and stored, is centred about the main entrance, and covered with a 50-ft. span steel-framed roof having a centre lantern light and secondary side skylights. The unglazed parts of the roof could be covered with painted galvanised iron, or one or the other of the compressed asbestos sheetings. There are four such roof trusses carrying either timber or Z-steel purlins, and there is a broad valley gutter on either side of the

is of great advantage. The pit may be 3 ft. 6 ins. wide and, say, 4 ft. deep, and is normally covered with 2 in. planking fitted to a seating, to be removed when a car is placed *in situ*. The pit may be constructed of 9-in. brickwork with 6-in. concrete bottom, and needs, preferably, a drain, and such drain, as in the case of those shown from the chassis repair department, and from the washing place, should have petrol-arresting devices to prevent the inflammable spirit from entering the public sewer. Our car-washing space is perhaps somewhat extensive, and a much smaller space would meet the requirements of a more exclusively repair business such as is here contemplated.



roof taking the rainwater. Smaller steel-framed trusses support roofs over the tool store and machine shop, on the one side, and the smithy and car store on the other. The car store is planned on the idea that a certain amount of business, or a certain business convenience, will result from the storage of cars; while the central garage space is more for the use of cars merely staying a few hours for some temporary and quickly effected repair.

An inspection pit, sufficiently long to accommodate a large lorry, is provided. Such an extension, capable of taking three, as indicated by dotted lines would be found highly advantageous. Although the pit is nominally for inspection, in actual working a car is often detained there for repair, and therefore a long pit

The washing-place has channels and gullies as indicated. Next to this is a petrol store, which must be constructed so as to comply with special by-law, whether above or below ground.

A department needing ample space and elbow room is that for car dismantling and repair. Where this is of a wholesale order the car should be removed from the pit and jacked up in convenient position to allow of the removal of the wheels, etc. In the space shown two or three chassis could be under complete overhaul at the same time, the cars being moved about to bring them across the bay of building instead of longitudinally, as shown. Ample filing and fitting benches are roomed here, because so much gear is taken off which, when unshipped, litters a good deal of space. This part of the works may



be considered suitable for an engine-testing bench whereon the repaired motor may be secured for running after such drastic amendment as new piston and re-ground cylinder bores, or for tuning up a new type of carburetter, etc., etc. This place, too, will afford a convenient position for the main electric-drive works motor, for actuating the tools in the machine shop, and such electric motor, which should be of the totally-enclosed type, should preferably be raised well above the works floor. We have indicated it upon strong steel-framed cantilevers, pinned into the brick wall.

The machine shop has lathes, drilling machine, grinder, and milling tool. A first-class 6-in. s.s.s. lathe and a simpler variety of the same machine will be suitable equipment; but as the lathe, if accurate and capable of attachments, is the king of machine tools, a growing business

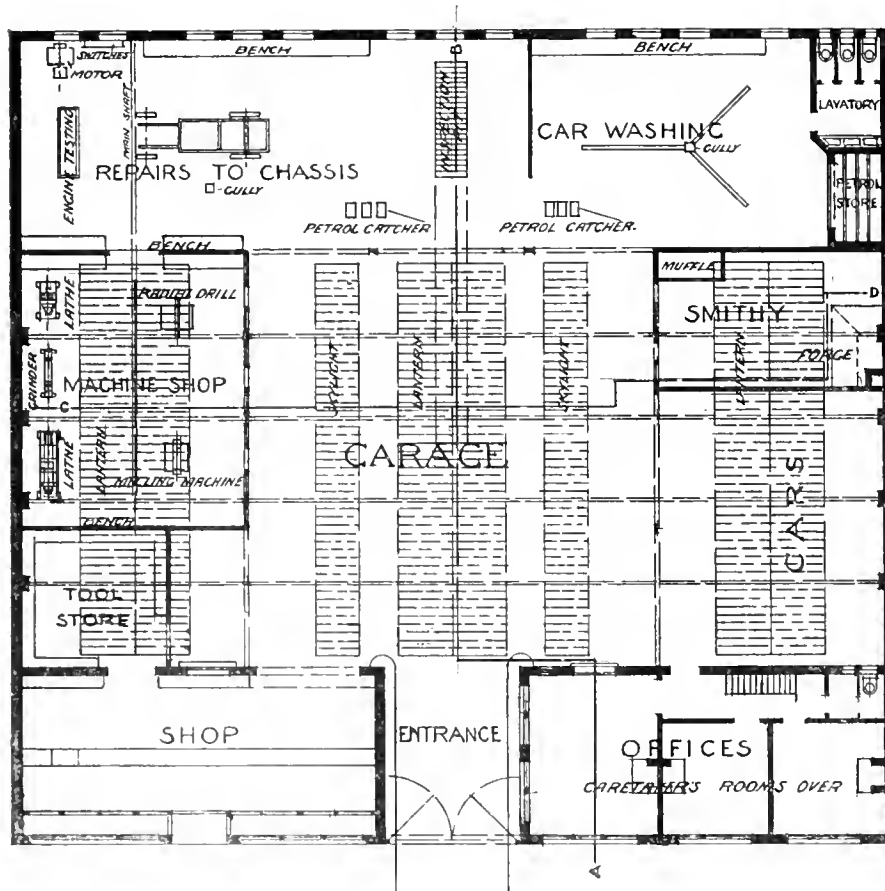
tion. The open garage space proper, which is practically a covered yard—an open yard covered in, to be more explicit—is only 50 ft. square; if this were increased, say to a square of 80 or 90 ft., the shop and offices, as planned, it might bear a better relation to the whole. As a matter of fact, we made the sketch having in view a first floor over the chassis repairs and the washing department, and also over the machine shop, smithy, etc., the upper floor to be served with a car lift, say in the place at side of tool-room. This would greatly increase the potential business profits of the establishment, giving a fine area for a car storage business and possibly a useful joinery and painting shop, of such accommodation and facilities as would enable the owners to build cars from parts mainly supplied by specialists, such as frame, wheels, back-axes, etc.

shop. Most modern engineering shops are top-lighted, as by saw-edge roofs; but lantern ventilation is apt to let in rain incidentally, which is not welcomed where much brightly-finished steelwork is dealt with. It seems worthy of suggestion that possibly if the back wall of the premises had been practically all glass, and with flat asphalted roof, as shown, a fine machine shop and smithy could have been there arranged, and car washing and car storage have occupied the side bays.

The machine shop in a growing business should be capable of ready extension longitudinally, i.e., in line with main shafting. A practical modification would no doubt be the removal of the tool store into the shop premises, as drawn, and the extension of the machine-room by means of the space thus rendered available.

#### PHOTOGRAPHS AT THE CAMERA CLUB.

The annual exhibition of photographs by members of the Camera Club, opened on Friday, at 17, John Street, Adelphi, W.C., is limited as regards numbers, in comparison with the displays in pre-war years, but is of a very high standard of quality. The eccentric specimens have been weeded out by the Selection Committee, and there is a wide variety of subjects. A large proportion of the exhibits, including some of the most noticeable, are examples of the bromoil process. J. C. Warburg gives us in No. 1, "Neptune's Fountain, Cheltenham," a fine effect of sprays of water issuing from bizarre tritons and other figures, well contrasted with trails of creeper and an Ionic colonnade. "Artist and Critic," No. 3, by F. Bernard Smith, shows a fisherboy watching an old salt painting numbers on a set of fish baskets. No. 4, "Audrey, a Portrait Study," by H. Beadnell Gill is the sole example of ozotype, a process very popular a few years ago, but now almost discarded owing to its uncertainty; the effect in this case is to give a charming portrayal suggesting the touch of a water-colour. Most of the subjects shown by Dr. G. H. Rodman are, as usual, enlargements of microscopical entomology, but he also sends in this year "The Ruinlow," No. 6, in which the pale are seen upon a background of chalets, firs, and limestone scars in an Alpine valley. J. R. Lynch, jun., gives us in "An Old Farm," No. 7, a landscape darkening under evening shadows; silhouetted against the glowing sunset sky are chimneys and the roofs of a barn and the homestead, and these buildings and the bright opening between the clouds are again reflected on the surface of a pond. "Ledbury," No. 8, by the same photographer, is a peep at eventide along an alley between plaster and timber cottages towards the disproportionately slender spire of the parish church. "At Fowey Ferry," No. 9, by Charles H. L. Emanuel, is a view across the river to the vessels moored in the harbour under the hill; "Corfe Country," by the same artist, is a distant view of the downs, in which too much space is given to the sky; and "Water and Weather," No. 11, a third work by Charles Emanuel, is a charming view of East Loos from across the stream. "A Stormy Sunset at Candeber Ferry," No. 12, by T. B. Blow, is a small but very effective rendering of rough weather on the Lower Seine. Another of T. B. Blow's four exhibits, "Turning Out the Intruder," a hospital servant, pail in hand, ejecting a man, shows too obviously the posing of the figures. No. 16, "Whitby Abbey Before the Bombardment," by Cyril L. C. Locke,



will add more where one good drill and one effective milling machine will at first serve all purposes. The type of drilling machine best suited for this business has a radial arm, and where the right man is found to operate it, in all its various capabilities, a "universal" milling machine will enable the works to provide any kind of repair to engine or gears that is likely to be taken into a small repair garage. Other necessities are a grindstone or emery wheel, and, in addition to the heavy radial drilling machine, a high-speed "sensitive" drill will be required. In the smithy will be a forge of some kind, often in small establishments a large gas blow-pipe, and in this department may be located an oven or muffle furnace for case-hardening. A sand-blast plant for cleaning metal and polishing is perhaps rather outside the range of requirement in small garages.

The shop, unless intended for whole car display, is possibly rather too pretentious for the scale of the establishment, and the same may be said of the office accommoda-

We have before remarked that the car-washing place is rather roomy for the size and character of the establishment. At most small garages washing of cars takes place here, there, and everywhere, so that the whole garage may be littered with car washing. As to the planned chassis repairs department, a considerable area is here advisable. A car enters a garage for repairs; it will probably be run over the pit for convenience in inspection of all parts, and if the repairs embrace some work on the main frame, gear, or wheels, it is necessary that the chassis be handled as an integral piece of machinery—that is to say, we cannot, as for certain other repairs, unship definite parts and remove them for attention into a workshop. This being so, it is likely that such an establishment as sketched will have two or three frame-and-wheels under repair as wholes. This is not always the case, because a part can be dismantled, the car being left in the general garage, the fitting taken into the repair shop. Our scheme gives top-light to the machine

is an admirable architectural photograph in bromoil; it is taken from the interior of the choir, with the north aisle to the left, the sea being visible through the three lancets in each of three tiers in the bare eastern wall. J. W. Duvall, in "Tarbert, Loch Fyne," has a steam vessel in the foreground, its lines relieved against the long, low serrated hills across the water. F. J. Mortimer has, as usual, been to Holland for his subjects: "At Volendam," No. 24, a fisher-girl in national costume faces us with arms akimbo on the quay, while across the harbour are seen the smacks; his "Critic," No. 26, is an old salt in voluminous trousers and heavy sabots watching his men retarring the hull of a beached trawler; his third work, "The Canal, Moonlight," is a placid scene portrayed with all the technical skill that Mr. Mortimer has familiarised us with during many years past. Bertram Park shows several characteristic portraits of ladies, the most attractive as a portrayal being that of Miss Irene Vanbrugh. A powerful rendering of the savage grandeur of "Glen Sannox, Arran," with the light breaking on a torrent dashing over boulders beneath the shadows of dense foliage on the brae is given by J. W. Duvall in No. 33. Of Ward Muir's works, his "Winter Afternoon in Westmorland," No. 35, a brawling stream beneath the Langdales, is the best. "A Bit of Old Ely," by Philip H. Williams, is a view through a fifteenth-century doorway in the High Street. Fred Judge sends a number of successful works in oil colour, too pretty-pretty in effect; the two best are "An Autumn Afternoon, Alexandra Park" and "The Park Pond." "Fragility and Strength," No. 44, by A. R. E. Evershed, is a picturesque rendering of an old masonry bridge of several circular arches, across a shallow stream; on the near side a clump of hemlock in blossom is swayed by the breeze. Below it is hung "The Pardon, Port Manech," by J. W. Duvall; a group of Brittany peasants with white caps and capes are walking along the beach below the cottages outside which other girls stand watching them. "The Sands of Aberdovey," by Captain H. E. Morrill, is an admirable landscape composition in bromoil; across the dunes is seen the stream, and beyond it, under a sky suffused with light, are two ranges of hills. A stormy scene is portrayed by R. Belfield in "The Bay of Biscay," No. 48; beneath heavy cumuli is a wide expanse of ocean, the wavelets lashed by a stiff breeze. Of a widely diverse type in subject and treatment is "On the West River, China"; on a broad, shallow stream is an antiquated tug, drawing some barges and belching dense smoke from a long funnel; behind are low and featureless hills. A characteristic portrait, a bromoil, of Sir Henry Newbolt, the distinguished poet, is exhibited by Hector Murchison, who shows above it "Underground," a train leaving one of the tube stations; it might be hung beside an engraving of W. P. Frith's "Railway Station" as an effective contrast in buildings and costumes of the present day and sixty years ago. A clever bromoil transfer is "Notre Dame, Paris," by W. H. Prescott; the great church is seen from south-east across the Seine, with the Pont de l'Archevêche to the left. "Stoking Up," by Captain H. E. Morrill, No. 59, is a smudge; the stern of a steam vessel is just discernible in the murkiness beyond the wake left in the stream. This year's display is brought to an effective close by two cleverly arranged portrait groups of wife and children, entitled "Snapshots from Home," by T. E. Slaughter. The

exhibition is open daily between 11 a.m. and 6 p.m. until February 5, and will well repay a visit.

## RESURFACING BRICK AND CONCRETE.

By GEORGE E. WALSH.

Fall of the year is by general consent the most favourable time for painting the house, and usually painters and decorators find this their busy season. Owing to the comparative dryness and the freedom from dust on account of the stillness of the air, combined with the absence of small insects, fall painting produces the most satisfactory results.

But the owner of a brick, concrete, or stucco house views the painting of his neighbour's wooden structure with a certain amount of cynical satisfaction. But while he may not have to paint his house, he does have problems of his own, and these are very rarely treated for him in a simple, practical way. His house of bricks may be dirty, stained and unlovely in appearance, and no paint will spruce it up. His concrete or stucco house may be discoloured, stained with moisture, and damp inside and outside. It is just as important to him to know what to do to clean and resurface his residence as it is to the owner of a wooden structure to know how to paint it.

A good many brick houses are discoloured in spots by a whitish encrustation known as scum. This "scum" spoils the effect and often brings disgust to the owner. Now, the greater part of this scum which disfigures buildings is due to faulty material or to the use of impure water in manufacture. It is caused by soluble salts in the bricks, which are dissolved when the bricks become wet, and for this reason it is most often found on the north side of dwellings, where dampness rises and little sun is obtained. The water brings the soluble salts to the surface, and when it dries out leaves a whitish efflorescence coated over the surface.

If this scum is very thick it may be removed by scraping with a wire brush, but the danger is that the bricks may be scratched and spoiled. The better way is to brush it off when dry with a stiff paintbrush and then wash the surface with a weak solution of hydrochloric acid (5 to 6 per cent.) or acetic acid (7 to 8 per cent.). This solution should be applied with a brush, working downward, so as not to leave streaks. The acid will loosen the scum and neutralise the salts. After applying it, the wall surface should be washed with a spray of water to remove all acid. The washing should be done on a warm, dry day, so that the moisture will not remain on the wall overnight and cause further salts to come to the surface.

A brick wall that is simply dirty or sooty can be treated better with a solution of soap and water. This takes hold of grease and soot better than does the acid. Dissolve plain soft soap in warm water—1 lb. of soap to 4 gallons of water—and after thorough mixing apply with a hard brush, and finally wash down with clean water just as when acid is used. If the greasy soot and dirt have not been allowed to remain on the brick surface long enough to injure the bricks, the cleaning process will bring the natural colour of the bricks out almost like new. The soapy solution has no effect upon clean brickwork or stone, and does not in any way injure the bricks. Care should be taken to wash off every bit of soap when the job is finished. Play a hose on it until you are satisfied that the surface is perfectly free from the soap. Otherwise the film formed by the soap will furnish a good surface for dirt and soot to collect thereon rapidly.

The same treatment applies to stone and terracotta surfaces. In the latter case care must be taken not to destroy the finished face of the terracotta. If this is destroyed it will leave an open porous surface that will absorb moisture rapidly and spoil the walls. It is for this reason that scraping wall surfaces of this character is always somewhat dangerous. A few scratches here and there through the finished surface will disfigure the wall for all time. In using acid washes the solution, if made weak, will cause no harm to bricks or terracotta. When acids are used the surface should first be washed off with clean water to remove as much of the dirt and soot as possible. If dust alone disfigures the building

a powerful spray of water may be used to remove it. A force pump may be employed for driving the stream of water.

Cleaning brick walls every year, or even in some such way as this, will keep them looking clean and fresh indefinitely, and will make the bricks look like new, and prevent the accumulation of dirt that is time and money possible to remove except by scraping. The cost of cleaning the surface is almost nothing, and the work can be performed by the owner without great trouble.

The owner of a concrete or stucco house has other problems to contend with, and when he sees his neighbours painting their wooden structures, dressing them up anew with a bright fresh coat, he looks askance at his own house and becomes a little dissatisfied with its appearance. Now, concrete and stucco work varies greatly. One house is clean and white, and free from cracks and dampness, while another looks disreputable shortly after it is finished. Much depends upon the ingredients first used, and in their mixing and application.

The greatest trouble experienced with concrete and stucco work is the tendency to absorb and hold water. Some walls appear eternally damp and wet, and the moisture absorbed from outside penetrates even to the inside. Other walls are damp only in streaks, giving a very disagreeable effect. To prevent such disfigurements, good builders often waterproof their mixture before applying.

Painting cement or concrete houses after a year or two to give them a new surface freshness is becoming more or less popular in this country. The reasons for changing the surface colour of a concrete or stucco house are many. Sometimes one is not pleased with the glaring white of the stucco after it is put up, or the shade originally adopted has faded or does not harmonise as well as expected. Again, the surface cement may peel off, and resurfacing in spots leaves a very streaked and blotchy effect. The only remedy for this is painting or tearing down the whole wall and doing the job over again.

There are many special concrete paints on the market to-day adapted to this purpose. The most difficult problem is that of finding a protective coat that will waterproof a concrete surface without discolouring it.

The absorbent quality of machine-made concrete blocks is usually greater than that of stucco or mass concrete, and consequently houses made of such blocks should have a liberal application of the oily paint. Two or three other good coats of paint should then follow in the usual way. Such a concrete or stucco surface will be non-absorbent, and will not require painting oftener than a brick or wooden house.

If a new concrete or stucco house is to be painted the surface must first be treated with acids to prepare the surface for the paint. These acids are used to neutralise the alkalis in the green cement, which otherwise will prevent the paint from adhering to the surface for any length of time. Paint applied direct to a green concrete surface soon peels and chips off. Both muriatic acid and sulphuric acid have been used as washes for the surface to prepare it for paint; but a simple method is to use a solution of zinc sulphate and water. The solution is made of equal parts by weight of zinc sulphate and water, and applied with a bristle brush as you would paint. This should be allowed two or three days for drying. It causes a chemical change in the caustic lime, changing it to calcium sulphate (gypsum), and when the solution has thoroughly dried there is left a certain amount of zinc oxide in the pores of the concrete or upon the surface. This material is one of the important parts of white paint pigments, and when the paint is applied over it it becomes incorporated with it. It has no harmful effect upon the paint or the concrete, and it prevents the sealing off in green cement.

All of these methods of treating brick, stone, concrete and terracotta have been thoroughly tried out, and they place within the means of every owner of such a house a chance to resurface and restore walls and make them look as good as new. *Paints, Oil and Drug Review.*

The death is announced of Mr. Edward Ricketts, road surveyor to the H. R. & D. District Council.

# SOME NOTES ON REINFORCED CONCRETE.\*

By R. M. KEARNS, F.S.I.

Hundreds of books—many of them being veritable cyclopædias—and thousands of articles have been written on subjects relating to reinforced concrete. These literary efforts have emanated from all sorts and conditions of men—engineers, architects, surveyors, expositors of the theory of construction, specialists, journalists, and, among others, a panel doctor. The latter has contributed some information of vital importance. He has announced that reinforced concrete buildings are "innocuous to the growth of spore-bearing organisms," and has expressed the opinion that "with healthier homes we shall become a healthier race and a people no longer liable to rheumatism." We shall therefore do well to discuss the subject of reinforced concrete.

In view of the mass of literature describing the various "systems," and of the theories and bewildering formulæ connected with stresses and strains, the subject appears to be particularly dry; but a keen interest in it may be aroused if we exercise our reflective faculties in attempting to realise all that a reinforced concrete structure represents. For instance, if we pause to inquire into the origin and supply of our building materials, there is unfolded to us the enthralling epic of the soil: from which we learn that our ballast and sand (the water-worn fragments of pre-existing rocks), the mineral products from which the steel rods are made, the chalk and clay for our cement, all come to us from a far-distant past in obedience to the marvellous law of nature. We learn that the Solar System itself is involved, and that from the earth's planetary relations and the concomitants of night and day, summer and winter, heat and cold, arise forces ranging from the terrible upheaval of the volcano, from earthquake and hurricane, to the soft zephyr and the gentle-flowing stream: all of which unite in the ceaseless work of modifying the earth's crust—here disintegrating, and there reassembling, reconstructing. In this connection it may be noted that in assembling our materials and forming reinforced concrete we are working on Nature's lines, evolving, what is very remarkable, a rock-like composition which is reputed to be proof against the primary disintegrating forces to which I have referred—reinforced concrete, when constructed properly, being able to withstand the shock of an earthquake and all attacks from fire, wind, and water.

But we must not imagine that reinforced concrete will for ever remain untouched by the limiting hand of Time; for, according to Cowper:—

"We build with what we deem eternal rock:  
A distant age asks where the fabric stood;  
And in the dust, sifted and searched in vain,  
The undiscoverable secret sleeps."

If we now turn our attention for a moment to the timber—in scaffolding, forms and centering—which is so much in evidence during the construction of a reinforced concrete building, a mental flight is suggested to the spruce-fir forests of northern Russia, Norway and Sweden, or North America. From some far-off mountain slope, where the silence is broken by the swinging axe and the crash of falling trees, we may follow the course of the logs and spars as they travel on ice or snow, on logging railway, or, river-borne, through a panorama of pine-clad hills and rolling plains:—

Where the sparkling sunbeams glance  
All across the wide expanse,  
And the ozone in the breezes  
Makes the pulses throb and dance.

We may follow still further to the swirling waters, and the hum and shrieking whirr of sawmills, and then across the sea to crowded dock and contractor's yard.

Passing to the scenes in which our steel reinforcements are manufactured, we enter the murky atmosphere of coalfields and foundries. We may now conjure up some lurid pictures of swarthy workers in iron engaged on their allotted tasks, and presenting a weird and uncanny appearance as,

stripped to the waist in many cases, they move to and fro in the fierce glare of furnaces and among machinery which is awe-inspiring in its power and precision.

And what of the cement which, after all, is the most important factor in the construction of reinforced concrete? What is this wonderful material, inert in itself, but which, under the influence of water, exerts a silent and progressive force that binds ballast, sand, and steel with an interminable grip, thus forming a still more wonderful concrete? It is a fine powder known as Portland cement, so called on account of its resemblance, when employed in forming a rendered surface, to Portland stone, and is made from a mixture of chalk (or limestone), clay, and water by various processes of drying, burning, and grinding.

For a succinct and lucid definition we must, however, go to America. Mr. Jerome Cochran, in "A Treatise on Cement Specifications," gives the following:—

"Portland cement shall be defined as the finely pulverised product resulting from the calcination to incipient fusion, of an intimate mixture of properly proportioned argillaceous and calcareous materials, and to which no addition of other material greater than 3 per cent. has been made subsequently to calcination. No slag, pozzolana, sand, nor mixed cements, will be accepted under this classification. In other words, the cement shall be manufactured of a mixture of argillaceous and calcareous material in definite proportions and shall contain no furnace slag, grey limestone, hydraulic lime, or trass."

Having, then, come to a clear understanding in regard to Portland cement, we may venture to recall the fact that, although it was invented in 1824, it is only after trials and experiments undergone during a period of about ninety years that it has reached its present perfect condition. It is significant that the advent of this cement, which was destined to have such a far-reaching effect on the building world, synchronises very closely with that of steam power as a means of locomotion. The evolution of Portland cement, and the displacement for building purposes of cast iron, and then wrought iron, in favour of steel, are, indeed, eminently associated with the phenomenal progress in applied science which took place during the Victorian era. A hundred years ago, had reinforced concrete been initiated in any reliable mode of construction, it could not have been adopted for building purposes except in a few districts; for at that time, when railways and motor lorries were non-existent, and when a system of canals was advocated for the transit of merchandise, the cost of getting the proper materials together would have been prohibitive. Now, however, owing to the economy effected in the manufacture and delivery of cement and steel by the use of steam and electric power, the adoption of reinforced concrete should come within the range of practicability, not only in the United Kingdom, but in any habitable portion of the globe where there is road or rail.

I now submit some notes on reinforced concrete structures, hoping that they will serve as a basis for an edifying discussion.

Starting with H.M. New Stationery Office, a building which has attracted much attention, I quote, with the kind permission of the Commissioners of H.M. Office of Works, the following extracts from the specification:—

**River or Pit Ballast.**—To be free from sand and dust, must not contain any traces of calcareous, argillaceous, or other foreign matter, and to be broken into various sizes, so that all shall pass a  $\frac{3}{4}$ -in. mesh, and be retained on a  $\frac{1}{2}$ -in. mesh. The sand to be screened out of the ballast; all passing the  $\frac{1}{4}$ -in. mesh to be reckoned as sand.

**Sand.**—To be fresh-water, river, or pit sand, absolutely clean and sharp, properly graded and varied in size: all passing a  $\frac{1}{2}$ -in. mesh, and at least 75 per cent. passing an  $\frac{1}{4}$ -in. mesh.

**Cement.**—The cement shall be Portland (slow setting) to comply with the British Standard Specification (1910) for Portland cement. The builder is to provide with each consignment the maker's certificate of quality, but such certificate is not to be taken as conclusive. Such tests as the architect may direct will be made from time to time, and no con-

signment is to be used until the architect has signified his approval. The builder is to deliver consignments in advance for use, so as to permit of 28-day tests being made without causing delay in the progress of the work.

**Formwork.**—The whole of the timber centering, etc., used for the formation of concrete work is to be constructed in a solid, rigid, and substantial manner. The centres to be so formed that they may be removed in portions without shaking or jarring the concrete. To be wrought thickened and close-jointed, except where walls and ceilings will be plastered, and also to all external work where boarding, rough from the saw, and close-jointed, is to be used. No part of the centering is to be removed until the concrete is thoroughly set, and until the consent of the architect has been obtained. The formwork is to be thoroughly cleared of shavings and rubbish, and must be hosed out before the concrete is deposited.

**Concrete.**—To be made up as follows:—

Cement .....	1 cwt.
Sand .....	2 cubic feet.
Ballast .....	4 .. ..

To be sufficiently watered and mixed thoroughly, in an approved mechanical appliance, to the satisfaction of the architect. Test cubes, 6 in. by 6 in. by 6 in., of the concrete are to be mixed by the builder from time to time as the architect may direct. These cubes are to have an ultimate crushing strength of 1,800 lb. per square inch at twenty-eight days. The concrete to be deposited in layers not exceeding three inches, unless otherwise permitted by the architect, and to be properly punned and consolidated. The reinforcement to be completely surrounded and covered. No traffic on or over the concrete to be permitted until it is thoroughly set. It is to be protected from frost, inclement weather damage, or too rapid drying, and kept well wetted. No steel, except binding rods or stirrups, is to be nearer than  $1\frac{1}{2}$  in. to the external face of concrete, except in thin floor slabs, where the cover may be reduced to  $\frac{3}{4}$  in. No concrete to be used which has been left standing and begun to set. Floors and roof to be finished smooth with a rule. The roof slabs to be laid to fall.

**Granolithic Finish.**—The upper half-inch of floors (except where otherwise specified) to be formed of one of cement to two of approved granite chippings to pass a  $\frac{1}{4}$ -in. mesh, and to be free from dust. To be laid while the reinforced concrete is green, and to be trowelled off within an hour of laying. This surface finish to be in addition to the structural part.

**Steel.**—To be obtained from firms approved by the architect, and to be of such quality as to withstand the following tests: The ultimate tensile strength lengthways with the fibre is not to be less than 27 tons, and no more than 32 tons to the square inch. Specimen pieces of steel are to be bent cold until the ends close over a bar, the diameter of which is the same as that of the piece to be tested. The steel rods throughout are to be of the exact lengths and diameters shown on drawings. No welding or piecing of rods will be permitted, and they are to be bent where required to templates and while cold. After such smiths' work as may be required on the rods has been completed, the steel of which they are formed must present a smooth surface free from seams, flaws, or cracks. Great care is to be exercised in the fixing and maintenance—during the placing of concrete—of the steel rods in the exact positions shown on the drawings, and in securing the links and stirrups by which the rods are to be connected together in the positions shown for them, so that the position of the reinforcement in the finished structure may exactly correspond with the position as designed.

**External Finish.** Render the reinforced concrete work where exposed externally with Portland cement and sand in the proportion of one of cement to three of sand,  $\frac{3}{4}$ -in. thick, finished with an approved floated face. The finishing coat to be applied before the backing is thoroughly set. The concrete is to be hacked to form a sufficient key for the rendering, and is to be cleaned and thoroughly wetted before the rendering is commenced.

\* Read at the ordinary general meeting of the Surveyors' Institution, held on Monday, January 10, 1915.



**Boiler Chimney.**—To be lined to a height of 50 ft. with approved Staffordshire firebricks laid in fireclay, with all joints well flushed up. To have 1½ in. air space between the firebrick and concrete, ventilated as directed. The chimney is to be built clear of the building, as shown on drawings.

**Flues.**—Smoke flues in chimney-breasts are to be formed of terra cotta pipes 10 in. in diameter and with butt joints.

Bills of quantities were prepared, from which a schedule of prices was made for the adjustment of variations. The most important items were, briefly, as follow:—

	At	Per
Excavation from general area over site	different depths.	yard cube.
Ditto, in pier holes	...	...
Planking and strutting	—	Per foot super.
<b>Ferro-concrete (steel taken separately):—</b>		
In footings to columns	...	Per yard cube.
In columns to basement and sub-ground floors	...	...
In ditto to other floors (each floor kept separate)	...	...
In sub-ground and ground floor and in beams to same	...	...
In other floors and in roof (each kept separate)	...	...
In external walls at various levels (one item)	...	...
In internal ditto ditto (one item)	...	...
In area walls	...	...
In chimney and foundations to same (one item)	...	...
In bridge (one item)	...	...
Steel bars prepared and hoisted (one item)	...	Per ton.
<b>Formwork:—</b>		
To columns, internal or external (one item)	...	Per yard super.
To floors, including beams (sides of beams, etc., not measured but covered by price) (one item)	...	...
To staircase (measured on girth of riser and soffit)	...	...
To chimney	...	...
To internal and external walls (one item)	...	...
To bridge (one item)	...	...
To retaining walls (measured both sides and on the flat)	...	...
To mouldings (excepting to columns)	...	Per foot super.

I have omitted the prices advisedly. The schedule from which the foregoing items were taken does not coincide with the "Standard Method of Measurement" now recommended for general adoption, but it answered its purpose satisfactorily, and had the "Standard Method" been framed in 1911, when the erection of the New Stationery Office was begun, I doubt, in view of the large quantities of materials involved, whether the concrete required for this building would have been billed in "feet cube" or the steel in "pounds."

A short time ago I saw the bills of quantities for reinforced concrete in connection with a large industrial building, and found that the quantities had been prepared somewhat on the lines of the "Standard Method" from complete drawings, showing reinforcements and other work. Bills of quantities such as these may be admirable so far as they enable contractors to prepare close estimates when tendering, and also in regard to the data they provide for the accurate—though, perhaps, unnecessarily elaborate—admeasurement of variations, but I think they are incomplete if they fail to give the contractors the total quantity of concrete in "cubic yards," and that of steel in "tons." It may be argued that the contractors themselves are able to calculate these totals from the details given, but it is not fair that they should be called upon to do so, and it would be better for all parties if the calculations were made by the quantity surveyor. If such totals were furnished, in addition to the detailed quantities, which only should be priced, the contractor whose tender is accepted could at once make arrangements for obtaining his materials. Further, it is held by estimators that these total quantities are

essential and important factors in arriving at the detailed prices on which the tender is based. The contractors would also ascertain the quantity of cement from that given for the concrete. On the proportions of 1+2+4 they would probably calculate at the rate of one sack of cement to one-third of a cubic yard of concrete. Thus, the number of yards multiplied by 3 would give the required number of sacks of cement; dividing this number by 11 (where each sack weighs about 204 lb.) the cement would be shown in tons.

The grand totals to which I have referred would also show the ratio of steel to concrete—generally about 2 cwt. of steel to 1 cubic yard of concrete—from which the average cost of the complete reinforced concrete, at per yard cube, could be ascertained and, on occasion, made use of when measuring for certificates in respect of advances. In this connection the surveyor would allow about 60 ft. super. of formwork for every yard cube of the finished concrete.

It may be interesting to note that the proportions of the concrete for the industrial building to which I have alluded were 1 cwt. cement, 2½ cubic ft. of sand, and 4½ cubic ft. of aggregate, as against 1+2+4, the slightly richer brand adopted by the Office of Works.

His Majesty's New Stationery Office occupies a site of about 2½ acres. The building has a front in Waterloo Road faced with Portland stone, and other fronts in Stamford Street, Cornwall Road, and Doon Street, rendered with Portland cement. While the building operations were in the initial stages visitors were struck by the unusual spectacle of a number of yawning pits (about 10 ft. square and 15 ft. deep), from each of which arose a shuttered column of about 2 ft. square. A still more striking feature was presented by the building plant, an interesting description of which, together with some photographs, reproduced drawings, and general information in respect of the building itself, may be found in the *Supplement to the Contract Journal*, dated November 13, 1912. Three "Ransome" concrete mixers, worked by electricity, were in evidence, and three travelling cranes, also worked by electricity, ran aloft on rails supported by an imposing array of lattice steel girders and uprights. Quoting from the *Supplement*, to which I have just referred:—

"The gantries are modelled from those in shipyards, and they are the result of a careful study of the problem how best to erect this very special ferro-concrete building in the most expeditious manner and with due economy in plant and in labour."

These steel gantries enabled the contractors to place the building materials in position at any point from ground floor to roof, at practically a uniform cost. So far as I can judge, the uniformity was only broken to any appreciable extent in connection with the work to the upper floors; which entailed, of course, the loss to the contractors of the time occupied by the workmen in getting from the entrance gate to their places on the job.

It may be remarked here that, theoretically, there should be no "knocking-off" loss suffered by the contractors in regard to the time occupied in getting from working positions to the exit; but what occurs in practice depends on the contractor's foremen, the workmen, and special circumstances.

Some idea of the magnitude of the New Stationery Office may be gathered from the fact that 10,500 cubic yards of ferro-concrete and about 1,100 tons of steel were needed for its construction. These materials were put together on the Hennebique system throughout.

As might be expected in a building of this description, there was a large amount of repetition. Many beams and columns were of the same size, the result being that the contractors were able to use their formwork to great advantage. I believe that only about one-third of the formwork provided in the bill of quantities was actually required on the job.

The contractors also had the advantage of being able to make up on the ground-floor level practically the whole of the reinforcements for the beams. Hoisting into position

with the aid of the travelling crane was a simple matter.

A "Kennedy" bar-bending machine, and another of Chateher's design, did what was required in shaping the rod.

This building has been converted to the time being into a hospital—known as the "King George Hospital." Some interesting details of the conversion may be found in the review entitled "Ferro-Concrete," of November last. With this successful adaptation before us there would appear to be no further ground for the objections which have been raised to erecting buildings in reinforced concrete owing to the difficulties and cost that might arise in making alterations in the event of changes taking place in ownership and business. A few years ago some hesitation existed with reference to cutting into reinforced concrete walls, apart from the question of cost, but we are now getting bolder. In Fig. 1 is shown a common method

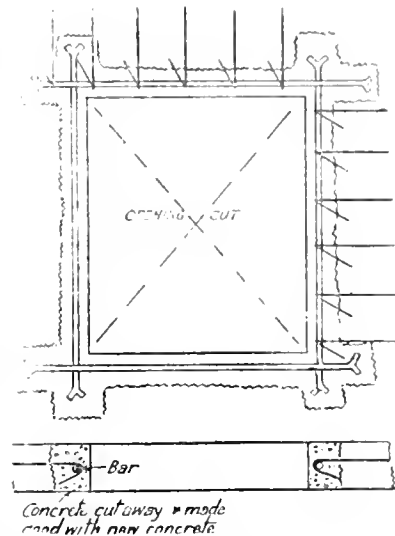



FIG. 1.—Method of forming an opening in an existing reinforced-concrete wall or floor slab. The reinforcement is cut off and bent around the new trimmer bars, as shown.

of forming an opening in a wall or floor slab. The ends of the new trimmer-rods might be bent thus: , instead of being fish-tailed.

No doubt it is true that difficulties arise in obtaining satisfactory tenders for the demolition of reinforced concrete structures; a case is recorded in which the cost of demolition amounted to double the cost of erection.

There is no reason, however, why blasting operations should not be put into force in cases of extensive alterations, or where pulling down is required, provided that an experienced hand does the work, and that proper shields are used. A large amount of blasting has been done for the Office of Works in connection with the removal of old foundations and no accident has occurred. In the case of the old cement concrete foundations, 9 ft. or 10 ft. deep, which had to be removed on the other side of Great George Street, gelignite cartridges were employed, and the holes for receiving the charges were formed by an electric drill. The operations were quite successful.

I may now submit some notes in connection with the New Science Museum, South Kensington. This important building, which is being erected on a site of about two acres, is of reinforced concrete with a Portland stone front to Exhibition Road and other fronts faced with brickwork in conjunction with stone strings and cornices. As regards the interior, the whole of the exposed face of the concrete is to be rendered in Portland cement (one of cement to three of sand), finished with ¼ in. Keene's cement.

The building is designed on substantial lines; so much so that its appearance when complete will hardly suggest the presence of ferro-concrete.

The most interesting features are the two arched roofs and their continuous lantern

lights. These roofs are of 34 ft. and 42 ft. span respectively. Some difficulties are presented by the formwork to the arched ribs, especially as the sides have to be panelled out. The reinforcements here also call for special treatment, but they are assembled before being hoisted into position in the rib boxes.

All the steel rods are being obtained from Earl Dudley's Steel Works, Brierley Hill. Some of the rods for the long beams have been supplied in lengths of 75 ft. No extra charge is made for rolling, but there is one in respect of carriage. These rods are 1 in. in diameter, and, for greater ease in handling and bending, are taking the place of  $1\frac{3}{8}$  in. rods, an additional number of rods being put in the beams.

The Coignet System is adopted in this contract, the rods and links being calculated and specified to the 1-16 in. in diameter—quite fine enough for all practical purposes. I know, however, of a building for which some

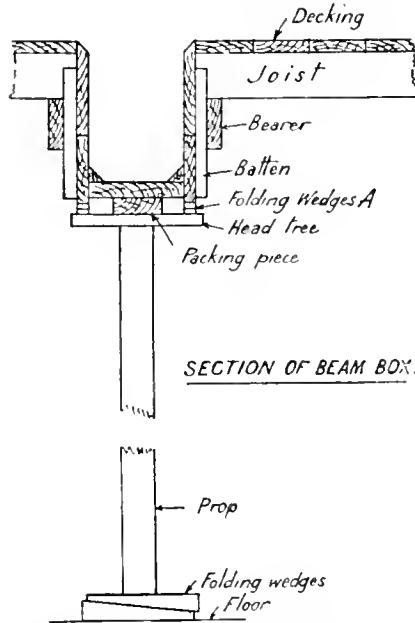


FIG. 2. Section of beam box, with bearers, etc., for floor decking. The above arrangement permits the beam-sides to be removed without disturbing the soffit or the props under the beam. By removing the wedges at A the beam-sides and decking may be struck after about fourteen days, leaving the soffit and props, which should be undisturbed for at least six weeks. The battens are nailed to the beam-sides (with wire nails as described) and the bearers nailed to the battens. The joists and decking are not nailed. Screws dipped in oil could be used for this work, but, for many reasons, nails are found to be preferable.

reinforcements were specified to the 1-64th of an inch in diameter. The concatenated mass of rods in this museum makes one wonder how the aggregate (graded from  $\frac{3}{4}$  in. mesh downwards) is worked in, but some ingenious appliances are being used, known as "rammers" and "slicers," with which the turning and surrounding are done very satisfactorily. In order that the wire for binding purposes should not be wasted or misapplied, it is cut to the required lengths in combined strands, leaving no ends to be dropped into the formwork or concrete.

No overhead machinery for placing materials in position is to be seen. Ordinary scaffolding is employed, but it is put together on the "Scaffixer" system. The lay-out of the plant has been well arranged, the cement stores, ballast, and sand being close to the mixer. The latter—one of Ransome's—is worked by electricity, and mixes about one-third of a yard cube of concrete at one time. As at the New Stationery Office, the concrete is made in the proportions of 1+2+4. The process adopted is to fill the feeding hopper to the mixer with a gauged measure of ballast, another of sand, and a sack of Portland cement (about 204 lb.). After tilting these materials into the mixer, water is added immediately from an adjustable gauge tank,

when the whole is thoroughly churned—usually for about a minute and a half. The resulting mixture is then discharged into a tip-wagon and conveyed on a light railway through the building, or to the sides of the building, where electrically driven hoists raise it to the required levels. Boarded aprons protect the structure where the hoists operate. The quantity of water supplied to the mixer depends to some extent on the weather and the state of the ballast and sand. In wet weather, when the latter materials are damp, the gauge is adjusted accordingly, but only an experienced man is allowed to decide as to the quantity of water proper to the varying conditions.

The formwork in this building is, in some parts, very intricate, and, except in regard to the floor-slabs, there is little that can be used more than once. It is put together with wire nails (3 in. and 4 in.), which may be clawed out readily, as they are not driven right home. On reference to Fig. 2 will be found an illustration of the method of constructing the formwork to the beams, the soffits of which are supported by 6 in. by 6 in. die square timber props, in some cases 25 ft. long.

It may seem fitting to state here, after my early reference to railways, that the new museum will probably house George Stevenson's famous engine "The Rocket," and other machinery now to be seen in the adjacent building.

Leaving the New Science Museum, I now turn to a few general notes which are somewhat disjointed.

Our third figure illustrates a mode of reinforcing a beam where it is pierced by a pipe. The same figure shows how a pipe may be suspended from a floor-slab. Where possible, however, it would be better to support pipes and shafting by means of brackets projecting from columns, piers, or counter-forts.

Fig. 4 serves to demonstrate a method of keeping the rods to floor-slabs in position while the concrete is being laid.

During the erection of a reinforced concrete building care should be taken to prevent the concrete from adhering to any party-wall of adjoining property, otherwise damage might be caused to the latter in the event of a severe frost, owing to the contraction of the ferro-concrete. Sheets of felt placed to separate the new concrete from the old structure have been found most effectual.

Pronouncements are invited on the following points about which there is diversity of opinion among experts:—

While some authorities allow the formwork to be covered with a wash of lime before the concrete is deposited, in order to ensure good surfaces when the centreing is struck, others regard this as unnecessary, and are satis-

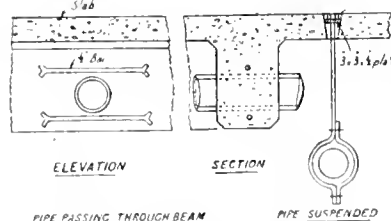


FIG. 3. Method of reinforcing a beam pierced by a pipe and adopted when the position of the pipe is known before the concrete is deposited. Where the pipe is suspended, a tapered hole is formed in the floor-slab, and a washer, say, 5 ins. by 3 ins. by  $\frac{1}{2}$  in., is let in sufficiently low to allow the head of the bolt to be flush with the upper surface of the slab. After fixing the hanger, the bolt-head and plate should be well grouted in. To avoid confusion, the ordinary reinforcement is not shown.

fied if the boards are kept well wetted. And while the formwork is treated with "concrete oil" in some cases it is condemned in others. It is certain, however, that the formwork should not be oiled if the concrete is to be plastered.

Differences of opinion also exist as to the best means of making concrete waterproof

Experts agree, however, that the concrete should be moderately rich and that the aggregate and sand should be so well graded as to fill, if possible, all pore spaces. The concrete should be mixed and laid with the greatest care, and should be allowed to set and harden before its permeability is tested. Some authorities state that the mixture should be "fairly wet," and that "on no account should a dry mixture be made if intended to be watertight." On the other hand, one authority states that the mixture should be "fairly dry" and "well rammed in thin layers."

Coming to the concrete roof or flat, with its covering of asphalt, the question arises whether the concrete should be finished smooth with a rule, or receive, while it is green, a floating of cement. Either course provides the necessary even surface for the asphalt, which should be applied in two coats, the first being more bituminous than the second. When this method is followed very little trouble arises from expansion and contraction, although, in the case of a very wide flat, unbroken by skylights, it would, perhaps, be advisable to form expansion rolls in the asphalt. One well-known firm of asphaltes prefers to lay the asphalt (two thicknesses of

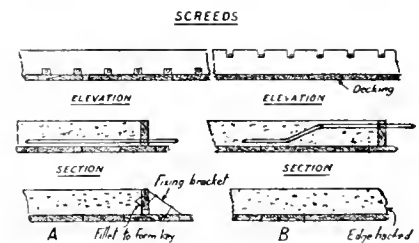


FIG. 4. Screeds, the same depth as the thickness of the floor-slab. They are fixed at convenient distances, and are notched at top or bottom to keep the floor bars in position. They are also used as a gauge for ruling off the floor surfaces with a straight-edge, and are generally fixed with a small wood bracket nailed to the floor and the screed. If a groove is required in the concrete to form a key, a small angle fillet may be nailed to the screed as shown at A. When new concrete is laid to join up with the old, the edge of the old concrete may be hacked and the top edge broken away slightly as shown at B. The actual joining-up should be done with cement grout. On no account should any of the screeds, fillets, or brackets be left in the work.

$\frac{3}{4}$  in.) on stout canvas nailed to a cement floated surface with zinc nails. It appears that asphalt will adhere very firmly to concrete walls or flats if the surface of the concrete is first painted with coal tar. The latter should be "heated in small quantities, brought just to the boiling point, and then applied immediately."

With regard to the various "systems" of reinforcing concrete, can it be declared whether there is cause or just impediment why the rods in beams should not be slightly larger in section and fewer in number? It certainly seems feasible that they should in no case be nearer to each other than two inches in order that it may be tolerably easy for the concrete—not thinned out, but containing its proper proportion of aggregate—to "surround" the reinforcements, and thus have a chance of doing its full work.

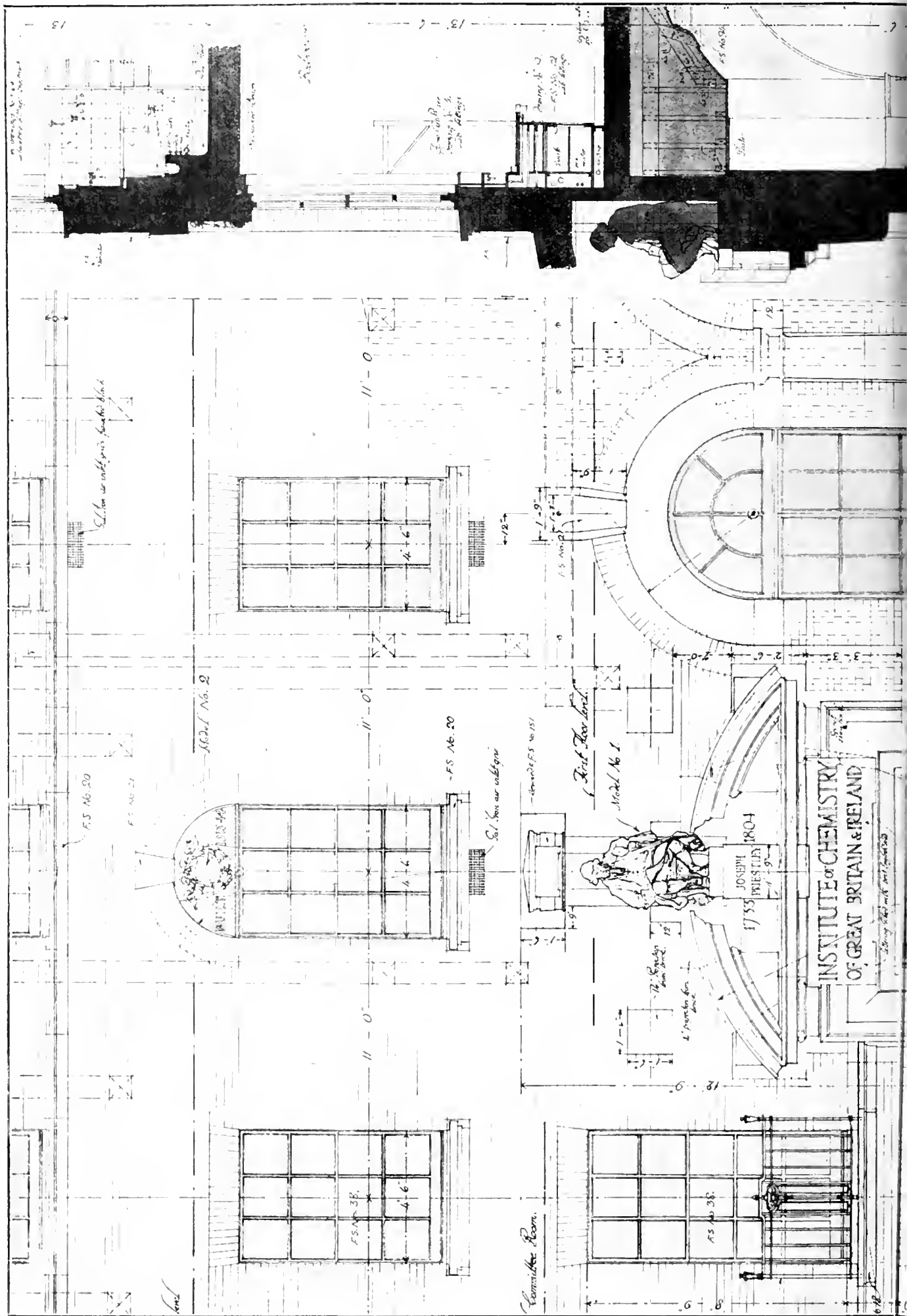
(To be concluded.)

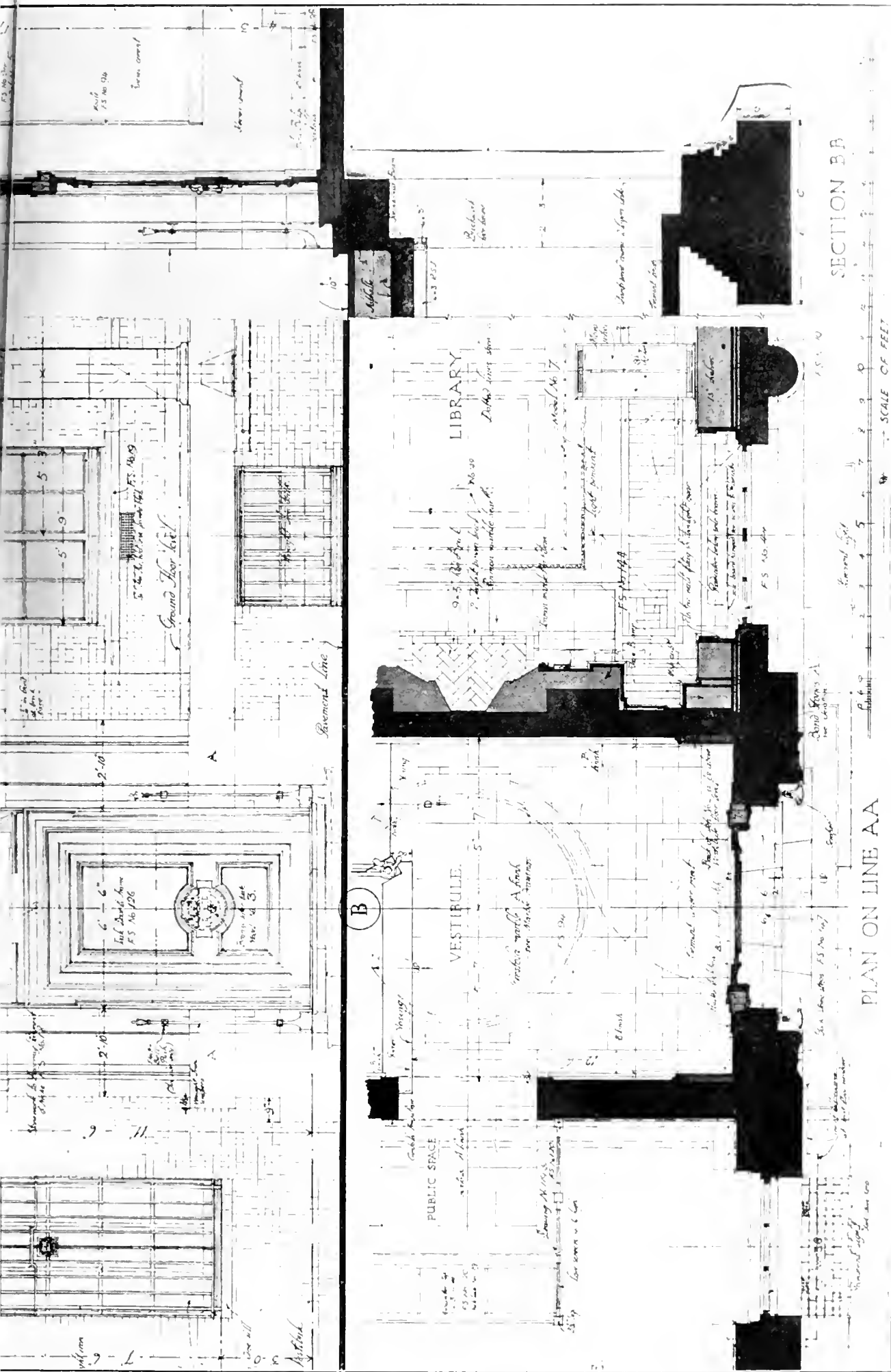
Mr. F. R. Shaw, architect, Holyhead Road, Handsworth, Birmingham, is architect for a new factory to be erected at Bournbrook for Components, Limited.

Mr. F. Webber, surveyor to the Horneastle Urban District Council, and Mr. E. Park, surveyor to the Horneastle Rural District Council, have joined the Royal Engineers together, and both councils are keeping their positions open for them.

The Manchester Corporation are recommended by the Waterworks Committee to spend £79,000 on new works at Longdendale. The outlay is necessary to afford protection from damage through heavy floods, and to increase the storage capacity of the reservoirs.





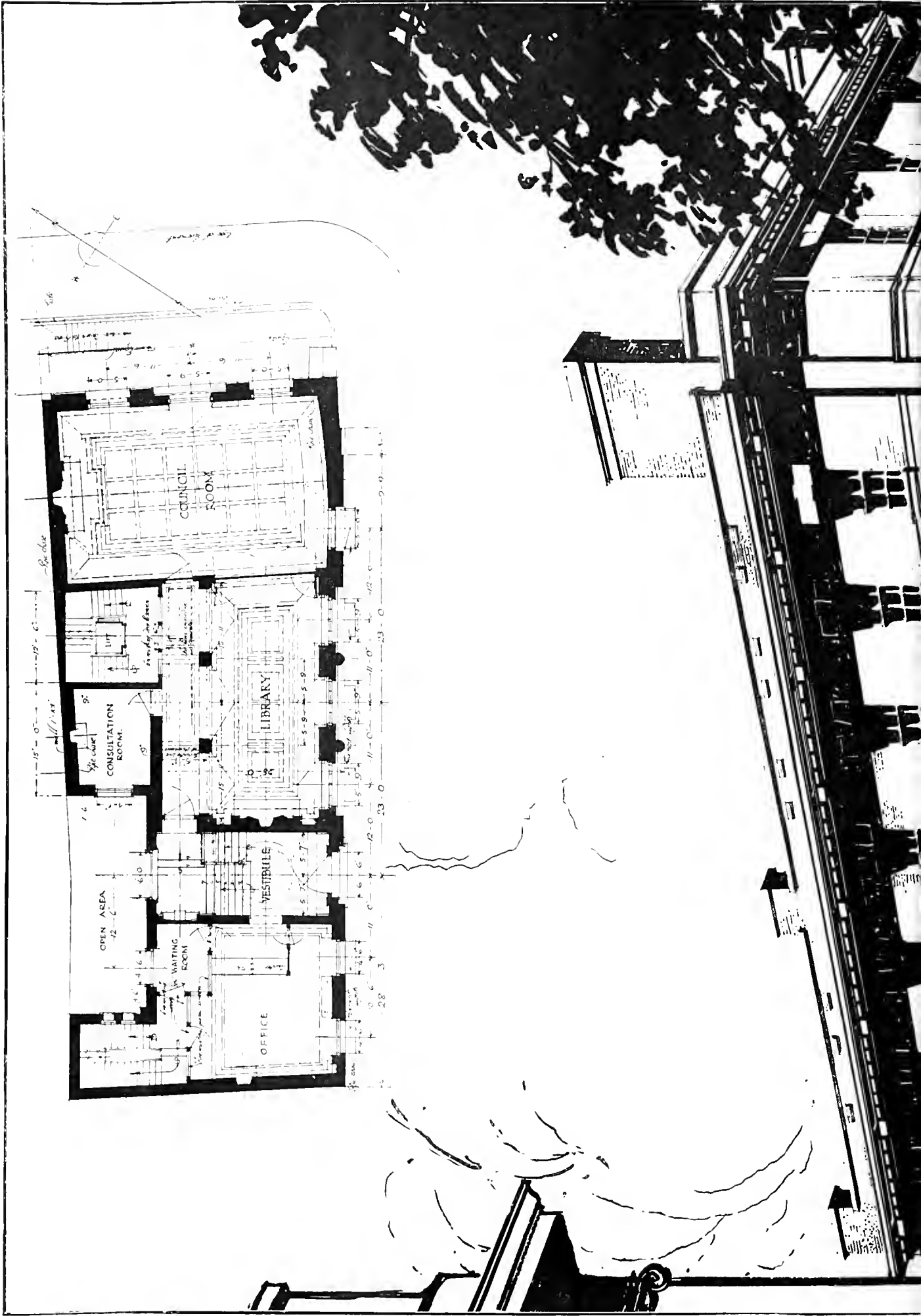


THE INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND, RUSSELL SQUARE, W.C.  
WORKING DRAWING OF ENTRANCE FRONT.—SIGNED J. B. B. 1909, R.S.A., F.R.I.B.A., A.C.I.





THE BUILDING NEWS, JANUARY 12, 1916.





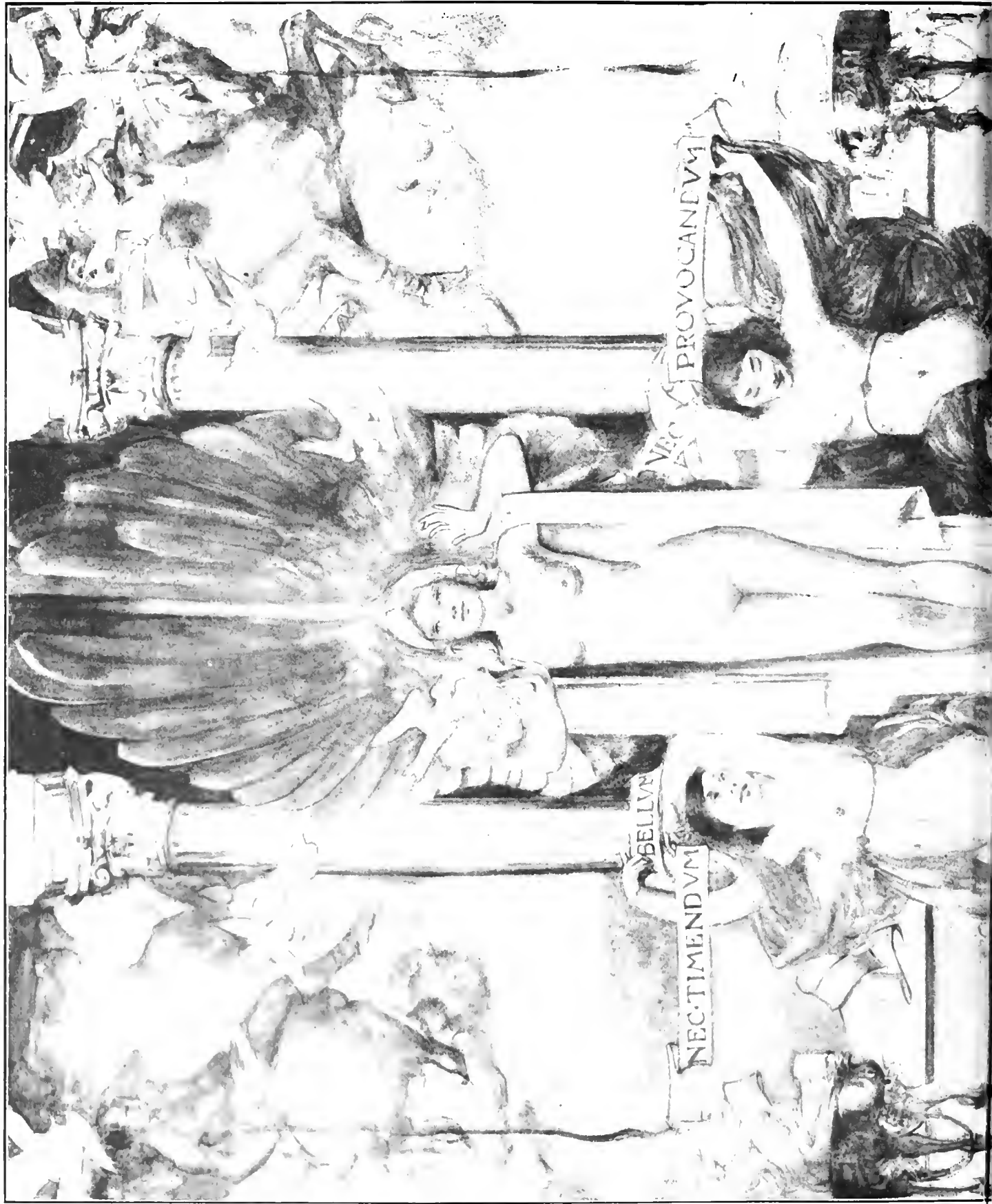


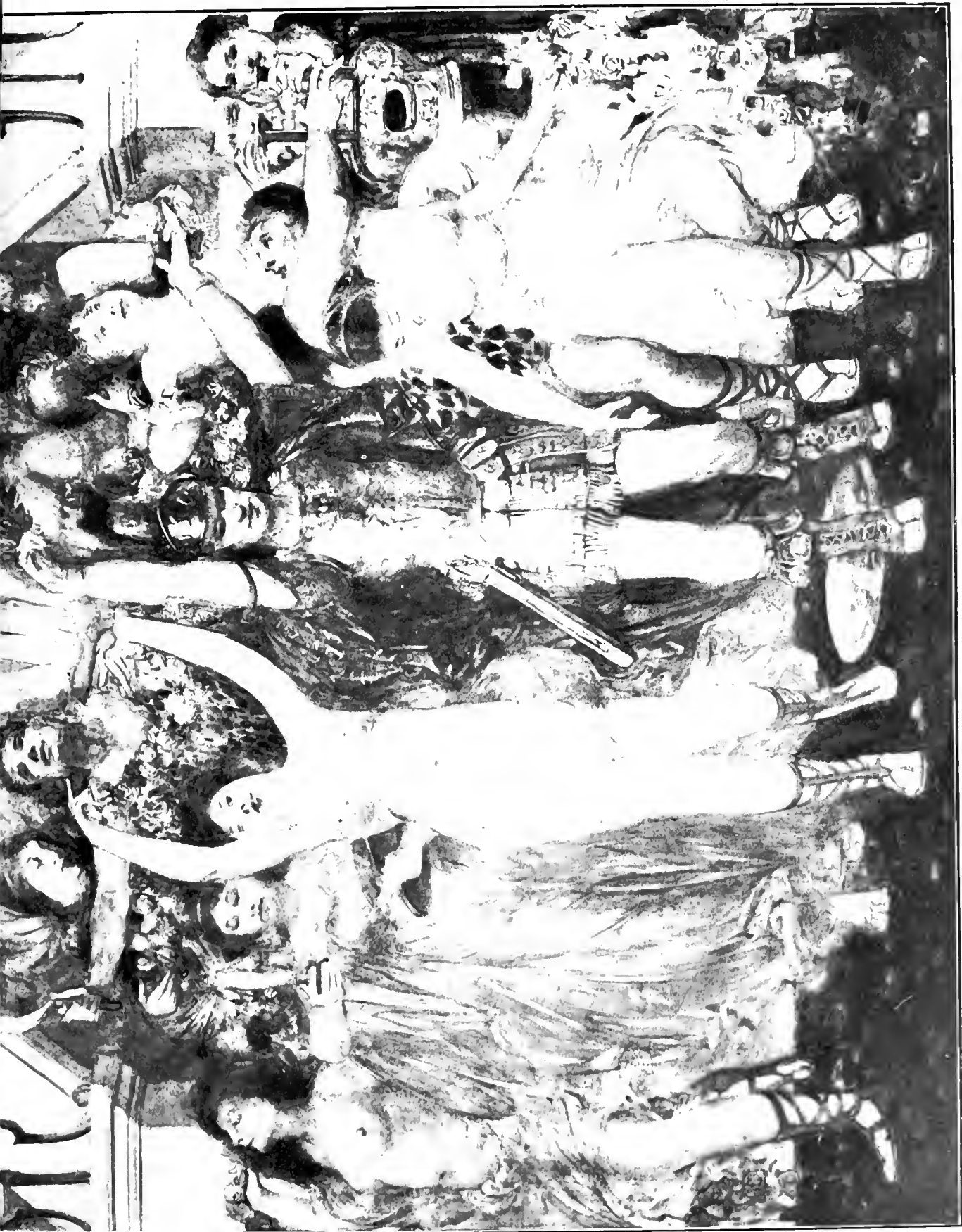
THE INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND, RUSSELL SQUARE, W.C.

Sir JOHN J. BURNET, LL.D., R.S.A., F.R.I.B.A., Architect.









THE TRIUMPH OF PEACE: ROYAL ACADEMY SILVER MEDAL PRIZE DECORATION DESIGN FOR A  
PUBLIC BUILDING.—By MR. JAMES CARRI POTTER.





## Corrente Calamo.

The meeting on Monday last at the Royal Architectural Museum to consider and confirm the action of the Council of the Architectural Association in this matter, as set forth by the presidential statement, which we published last week, was treated as a private gathering. The preliminary business consisted in the election of thirteen new members and reinstatement of an old one. Mr. Stanley Hamp, A.R.I.B.A., Vice-President, submitted the annual balance-sheet and report, which was adopted. Sir Aston Webb, R.A., proposed the confirmation of the President's statement, read by Mr. H. Austen Hall from the chair, and Mr. Maurice B. Adams (twenty-six years Hon. Secretary to the Royal Architectural Museum) seconded the resolution, which was carried unanimously. Mr. Geo. H. Fellowes Pryme, on behalf of the Advisory Council, in the absence of Mr. Henry T. Hare and Mr. Arnold Mitchell, previous to the vote being taken, spoke warmly in favour of the action of the Council in disposing of the property, and letters were read from Messrs. Gerald Horsley, J. A. Gotch, and some others supporting the sale of the premises, which one correspondent described as a sort of "white elephant," the consensus of opinion being that, notwithstanding the expenditure of over £8,000 on the additions and new buildings, the accommodation thus provided has proved to be a failure, and neither conducive to the success of the business of the Association nor helpful to its gatherings and proceedings. The loss of income owing to the war, and the decrease of students gone to the front, had brought the question to a head, and the inevitable necessity of removal had been forced upon the Council, which had no choice but to accept the offer made by the National Lending Library for the Blind, who had therefore acquired the buildings, and the unique collection of casts and specimens had been accepted by the directors of the Victoria and Albert Museum. It will be remembered that Mr. Leonard Stokes was employed by the Architectural Association to carry out the work which was completed about twelve or thirteen years ago, subsequent to the gift of the Royal Architectural Museum buildings, lease, furniture, and fittings, together with the collection of casts, examples, and historic furniture which alone was estimated to be worth from £20,000 to £25,000. Some of the old houses to the rear of the Museum have been acquired by the Council, and the life class retained for the use of the Architectural Schools, which will then be carried on in temporary rooms till the end of the war, when the money (some £9,000) in hand from the sale will be used for furnishing new class rooms elsewhere, and it is hoped in a more central part of the metropolis.

Canon Alexander calls attention afresh to the danger which threatens the fabric of St. Paul's and appeals for a sum of between £35,000 and £40,000 to continue the work which has been in progress since February, 1914, in the strengthening of the eight piers supporting the dome and the four bastions behind each pair of piers. There has always been trouble from unequal subsidence of the dome, with most marked declination to the south-west, due partly to the imperfect distribution of the weight, partly to original variations in the subsoil, and partly to the fact that Wren's failure to obtain sufficient quantities of Portland stone induced him to

use that material for facing purposes only, filling in with bricks, masonry from the burned out cathedral, and poor oolite stone from Burford, Oxon. Under the direction of Mr. Mervyn E. Macartney, architect to the Dean and Chapter, works of repair have been proceeding for a long time on the pier which stands at the critical point of pressure towards the south-west, and which has long been enclosed by boarding, but during the last few weeks a condition of things has been revealed which is graver than had been foreseen, and must be dealt with promptly. The operations have been carried out by the Cathedral staff, with Mr. Bonwell as clerk of works, but certain works are being executed under contract by Mr. Darby, of Islington. Two other piers and their substructures in the crypt have already been treated, and the works on the pier most seriously affected have nearly reached the level of the crown of the arch. The interior of each pier is being filled with cement grouting, all defective stones being removed and replaced by sound masonry. The next pier to be taken in hand is the north-eastern one. These absolutely necessary operations involve a large outlay, estimated two years ago at a minimum amount of £70,000. Nearly half that sum had been obtained, when the outbreak of the war interrupted the flow of donations. The rise in prices, the scarcity of labour, and the crushing income tax combine to make this an unpropitious moment to appeal to the public; but we sincerely trust Canon Alexander's plea will be promptly and liberally responded to. The work at St. Paul's is urgent, and must be carried through uninterruptedly, and the Dean and Chapter ought not to have these heavy financial anxieties to bear unaided, for St. Paul's is a national heritage of which we are all proud.

Lessor and landlords have now had an innings of some centuries; it is quite time that tenants and lessees had a chance. There are some signs of a turn of the tide in this way, and one of them is the result of the recent case of "Malzy v. Eichholz and Another," in which the Court decided an entirely new point in favour of a lessee tenant. The plaintiff held a lease of the first defendant of a part of some premises in the Strand for a term of twenty-one years from 1909 at a yearly rental of £600. The plaintiff, as lessee, had covenanted to continue the place as a restaurant and pay the necessary licences. The defendant's covenant as lessor was that the lessee should have quiet enjoyment of the premises leased to him. The lessor afterwards let a part of the same building to a tenant who ran a "mock" auction there, which greatly upset the plaintiff's business as a restaurant. So this action was brought by him for an injunction and damages against his landlord. The lessor's covenant as to quiet enjoyment only applied to what he let the plaintiff, and not to the adjoining other part. But Mr. Justice Darling held that as the plaintiff and lessee were bound by his covenant to carry on the restaurant business, so the defendant as lessor was also impliedly bound to let him do it. Therefore, his letting the adjoining part of the shop to a man who ran a "mock" auction was a breach of an implied or inferred covenant on his part. So the plaintiff won his case and also established a new precedent which may be of much future value. There was an injunction and costs against the enterprising landlord, who had, of course, also been paid rent for the other part where the auction business was carried on. The result is merely fair and just; but this is not always achieved when we come

to the construction of a covenant between landlord and tenant.

"Woodwich," says the *Times* of Monday last, "is suffering to-day from a house famine. There is, so far as is known, not a single private house in the borough of Woodwich let at under £50 a year to 50s. 3d. The slightest intimation that a house is likely to become vacant brings a flood of applications. It was rumoured late one night that a small house, old and not very convenient, might be available soon, as the present tenant had been ordered abroad. By eight o'clock next morning thirty-six people had applied for it. It had been let, however, by 6 a.m." That, as the *Times* remarks, is "a direct effect of the war," but it is quite as much the result of discouragement of building by the Government, which is making, it is true, some sort of attempt to repair its folly, but badly. How wastefully as well we pointed out on p. 604 of our issue of November 24, commenting on the remarks of Mr. W. E. Riley, the superintending architect to the London County Council, in his Chadwick lecture at the Royal Sanitary Institute on November 17. When the war is over and the workers are dismissed from Woodwich by thousands, half the houses on the Well Hall scheme will remain empty for years, while private enterprise is putting up houses not built with obsolete materials in defiance of Acts of Parliament.

The Manchester Tenants' Defence Association, whose agitation against the increase of rents of working class houses was almost immediately successful, now proposes to agitate for a remedy for the house famine and to stir up a national agitation, so that the Treasury may be induced to remove the prohibition upon municipal building schemes, and the first step will probably be to send a deputation to make representations to the Manchester Sanitary Committee. There is a very considerable shortage of houses in the city. The number of new houses built in the twelve months ending last October was 410, but 200 of them were in Waddington, which is very far from being a working class district. The average number of the new houses built in the five years 1906 to 1910 was 2,400. Then a decline began. In 1911 the number was 1,578, in 1912 it was 1,072; in 1913 997, and in 1914 714. In October last the Sanitary Committee took a census of empty houses rented at 8s. 6d. a week, or less, and found 348 in the whole of Manchester, which includes all temporarily vacant pending the arrival of the new tenants. In the districts of Hapurehey, Blackley, Moston, and Cheetham not a single house at 8s. 6d. a week or below was empty.

The London County Council has issued its official copy of the Regulations relating to Reinforced Concrete. The regulations in question, which were made by the Council on July 6, 1915, have been allowed by the Local Government Board, and came into force on January 1, 1916. Copies may be obtained from P. S. King and Sons, Limited, 2 and 4, Great South Street, Westminster, price 2d., or post free 3d., or by a letter index 6d., post free 7d. Every architect and builder will do well to have a copy. It is practically certain that these Regulations will govern all work of this kind throughout the kingdom, not only as regards contracts entered into with the Council, but for all private work as well, and it is therefore incumbent on all concerned to make themselves thoroughly at home with them.

Our readers of the older generation will learn with regret of the resignation of Mr. R. T. Wilkinson of his position as a director of Claridge's Patent Asphalte Company, Limited, thus severing a connection which he has maintained unbroken for sixty-three years. The good wishes of all his friends will go with him in his well-earned retirement, and it will be a source of gratification to hear that the new director of this company is Mr. W. J. Robinson, who up to a few years ago was connected with the timber trade, and may be known to some of our readers.

A useful work on "Bridge Foundations," by W. Burnside, is published by Messrs. Scott, Greenwood and Son, 8, Broadway, E.C., at 4s. It is almost entirely introductory, but it will be found enlightening to some who are unfamiliar with the best American works on the subject, which, it has to be confessed, is one with which British engineers are hardly so conversant as might be desired. Anyhow, as Mr. Burnside remarks, much may be done here towards standardising practice in design, as regards both the determination of loads and the allowable pressure on beds, and also the arrival at a uniform nomenclature for bed materials. The author, anyhow, has made good use of his own practical experience under such leading engineers as the late Sir William Arrol and Mr. A. S. Biggart, and he has enjoyed facilities for obtaining information from numerous American engineers and others responsible for many of the biggest bridges in the world. The book is adequately illustrated, and includes a series of useful tables compiled by Mr. Paul M. Plews.

"The Reinforced Concrete Regulations of the London County Council," made last July 15, and now in force, which we gave fully in several successive issues last July and August, have been published in a handy half-crown volume, with some explanatory notes, diagrams, and worked examples, by Ewart S. Andrews, B.Sc. Eng., by B. T. Batford, Ltd. It will be most useful, not only to London architects, but to others, for although the regulations only apply as yet to the London area, they are likely to be adopted throughout Great Britain, because they contain the most detailed requirements of any official regulations in the world, and have received the approval of the Local Government Board. Provincial authorities who apply for loans upon reinforced concrete construction will probably, therefore, conform to the regulations which the Board have already approved.

"The Decorators' Diary and Trade Year-book for 1916" (Trade Papers Publishing Company, Limited, 365, Birkbeck Bank Chambers, W.C.).—Besides the usual matter common to the best almanacks, and a diary printed on excellent paper, with superior interleaved blotting, it contains a variety of useful information indispensable to all branches of the building trade. There is a list of telegraphic addresses and telephone numbers of all the principal firms, a specially arranged wages table, a list of painters' specialities and where obtainable, a complete list of painters' and decorators' prices, lists of all the trade associations, and many excellent formulas, trade hints, and reliable measurement tables. It is serviceably bound, of convenient size, and in every way an unequalled epitome of knowledge in daily demand by the important industries, of which the *Decorator* is the acknowledged representative.

## Our Illustrations.

THE INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND, RUSSELL SQUARE, W.C.

This building comprises four stories, the general office being on the ground floor. The portal is in Keppel Street; to the right of the entrance vestibule, fronting on Russell Square, are placed the council room and the library, with the main staircase to their rear, as shown by the accompanying plan. The internal treatment of the premises is eminently simple, being adapted to the purposes of the building. The walls of the vestibule are finished in Keene's cement, the pavement and steps rising from it to the door of the council room and library being of unpolished white cretola statuary marble, with blue skirting. The steps have an armour-bright wrought-iron railing and white metal hand rail, unassuming in detail. The library, about 32 ft. by 16 ft., is lined with shelving, with a waxed-oak chimney-piece. The room is divided from the council chamber by folding doors, which are clear-glazed, and the walls have oak panelling up to the cornice, the chimney-piece making a feature at the north end. The apartment measures 35 ft. by 23 ft. Both rooms are carpeted, an unpretentious, quiet effect being essential. There is a consulting room off the corridor, and above it is the librarian's room, on the gallery level. The first floor is occupied by the metallurgical, biological, and gas and physical laboratories, besides an examiners' room, an assistant's room, and a dark room. The other laboratories have working benches, fume cupboards, and other necessary equipments and also apparatus. The second floor is allotted to the main laboratory and balance room. The former apartment is about 90 ft. long by a width averaging from 25 to 35 ft., and providing accommodation for 22 candidates, each having use of a bench of 11 ft., with all needful shelving for reagents, with ample drawers and cupboards for apparatus, and sink. A raised platform enables the examiners to command a view of all that is in progress. The sub-ground floor, over the basement, is level with the pavement, and contains the cloak-rooms, lavatories, and the housekeeper's quarters. Other lavatories occur in contiguity with the laboratories above stairs. The construction is entirely fireproof, with Flinton brick walls, faced along the frontages with Crowborough bricks. Portland stone is used for the main cornice and for all stone dressings. The circular-headed windows were carved by Messrs. Ammonier and Son. Over the main doorway is a seated figure of Priestley, by Mr. Gilbert Bayes, and this practically is the sole decorative feature about the building, which is designed on simple and dignified lines, suited to a professional institution and in fitting harmony with the Georgian houses of Bloomsbury and in the surrounding neighbourhood. The architect is Sir John J. Burnet, R.S.A., LL.D., F.R.I.B.A. The general contractors were Messrs. Higgs and Hill. The marble work was done by Messrs. Galbraith and Winton. Messrs. Spital and Clarke executed the ornamental ironwork, and the Birmingham Guild did the ironwork for the main and staff staircases. The heating and ventilating scheme was by Messrs. Ashwell and Nesbit, Limited. Messrs. Tyler and Freeman were the electric engineers. The fittings in the library and council room panelling were entrusted to Messrs. Wylie and Lockhead, Ltd. The consulting engineer was Mr. W. R. Cooper, M.A., B.Sc., A.I.C.E. Mr. E. C. Pinks, F.S.I., was the surveyor. The clerk of works is Mr. R. Allen Jane. We give a view, lent us by Sir John Burnet, and a double-page sheet of details of the Keppel Street main front, also a copy of the ground-floor plan included with the plate devoted to the perspective.

"THE TRIUMPH OF PEACE": ROYAL ACADEMY SILVER MEDAL PRIZE DESIGN FOR THE DECORATION OF A PUBLIC BUILDING.

Mr. James Cadle Pollard, the silver medallist whose design for this subject was chosen for this reward at the Royal Academy

annual prize competition last month, has lent us his drawings and sent us a few lines descriptive of his winning scheme. We have incorporated these notes in the following particulars. The treatment adopted for "The Triumph of Peace" is allegorical in form. The central winged figure, set between the columns of the frontispiece, is intended to represent an embodiment of "Peace," surrounded by attendant figures symbolical of the subject and yet handled in such a way as to be merely accessory to indicate in a minor key a general note of war. The aspect is, however, rightly subordinated in the background, while towards the front the feeling aims at a predominating illustration of the idea of triumph ultimately insured by the co-ordinate measure of justice overmastering the beligerent spirit of relentless warfare. This latter sentiment is suggested in the outskirts of the compositions, and casually introduced purposely beyond the more precise confines of the freely handled architectural setting. This treatment is inspired by a contradistinction to that adopted in the gathering towards the middle of the decorative scheme, where Peace is supreme, and here doves are seen descending in arc-like order as emblems of Love. The two variant ideals of "War" and "Peace" are thus proportionately represented in distinct contrast. The pair of figures holding scrolls bearing the words, "War is neither to be feared nor provoked" presented one of the chief artistic difficulties of this mural composition. They needed to observe a corresponding scale by contributing to the unison of this abstract idea, and as an integral part of the scheme these characters are of moment as linking up the salient features of the upper parts of the picture in association with the more virile symbolism in the foreground crowd below at the base of the scheme, which is distinctive of a pageant. Figures joyously relieved from the stress of war and thus set free, are hastily emerging in triumph to pursue the normal activities of Peace. The characters represent "Labour," "The Fruits of Agriculture," "Science," "Literature," and "Art," "Painting," "Sculpture," "Music," and the Drama. Amidst this busy throng, where every one is so diversely engaged, stands the defiant figure of a Roman gladiator, who, having cast aside his sword and shield, is grasping instead a freshly plucked branch of the budding olive tree. Meanwhile, the flickering braziers above are well-nigh spent, indicating the decline of the flambeaux of war overcome by "the Triumph of Peace."

It has been decided to erect a public monument in Cardiff to the late Colonel Lord Ninianrichton-Stuart, M.P.

The borough surveyor of Stoke-on-Trent has been instructed to reconsider the question of office accommodation at the Burslem new town hall.

Mr. John Sutcliffe, of Hazlewood, Hebdon Bridge, one of the best-known architects in the Calder Valley, and who died at Harrogate last week, was interred on Thursday in the family vault at Hopton-stall Parish Church.

A faculty has been granted to hang in the tower of Micklem church, near Leatherhead, four new bells which have been presented by Lady Elizabeth Lawrence in memory of her husband, the late Sir James John Trevor Lawrence.

The Hesham Rural District Council have completed a great deal of the sewerage work for the districts of Broomhough and Riding Mill, but a further sum of £2,000 is needed to finish the scheme. The Council have decided to defer this section until after the war.

Mrs. Florence May Hewitt, widow of Mr. Edwin Richard Hewitt, A.R.I.B.A., district surveyor for Southwark and part of Lambeth, 1882-1915, who died on October 13 last, passed away on Sunday evening at 12, Reynold's Close, Golder's Green, and was buried yesterday (Tuesday) in Hendon Churchyard.

Captain A. C. Whitaker, who was killed in action in France on December 31, was the elder son of the Rev. C. P. Whitaker, R.D., vicar of Broadclust, Devon. He studied mechanical engineering at Owens College, Manchester, and with Messrs. Crossley Brothers, Openshaw. Later, he was in charge of the erection of that firm's power stations in South America.

## OBITUARY.

We regret to record the death of our genial and untiring correspondent Mr. Harry Hems, of Ye Luckie Horse Shoe Studio, Exeter, which took place on Wednesday morning last after a lingering illness from Bright's disease. Shrewd, kindly, energetic, humorous, a clever craftsman, a voluminous and graphic penman, a great and observant traveller, probably the most prominent trait in his character was his genius for utilising the most unpropitious circumstances. For instance, a dispute over assessment with the Income-tax Commissioners resulted in a distraint on his premises, at which among the lots catalogued were his faithful bulldog Bob and a variety of "tombstones suitable for the graves of Income-tax Commissioners." Great fun and not a little publicity were secured from the enforced sale, at which all the lots were bought in by employees of the firm. Born in Islington, Harry Hems was descended from a long line of cutlers, and to Sheffield his parents returned when he was thirteen. After three years' employment in the family trade, his penchant for incising grotesque devices upon the handles led to his apprenticeship to Arthur Hayball, of Sheffield, a noted wood-carver of the day. He became a diligent student of the local school of art, excelled in athletics, and was one of the first to join the Volunteer movement. His apprenticeship ended, he returned to London, with no capital except ability in his trade and a perseverance only excelled by his self-confidence. After a spell of work as foreman carver in the restoration of Higham Ferrers Church, under Messrs. Slater and Carpenter as architects, in 1864, he went on foot across the Continent and over Mont Cenis to find employment in Carrara, and, having saved a little from his earnings, to study Classic and Mediaeval details in Florence and other cities. Arrest and imprisonment as an alleged Garibaldian spy hastened his return to England. The first work he carried out on his own account was early in 1866, when he executed sculpture and carving at Bramley Hill House, Croydon, under the late Charles Henman. Later in the same year he was sent, at the age of four-and-twenty, to execute some of the carving on the Royal Albert Museum at Exeter. Picking up a horseshoe in the city, he retained it as a mascot until years later, in 1881, he built the first section of the Longbrook Street studios and had it gilded and nailed to the façade. Within two years of his settlement in the ever faithful city he married the daughter of a local tradesman. Mrs. Hems died on June 29 last after forty-seven years' married life, leaving four sons and three daughters. Mr. Hems speedily built up an extensive connection in ecclesiastical carving both at home and abroad, and won high distinctions at the International Exhibitions at Philadelphia in 1876, Paris 1878 and 1889, Chicago 1893, and Antwerp 1894. He travelled in all parts of the world, and gathered in his studios and house art treasures and curios, including numerous carvings of all periods, and a bulky topographical library, including several huge tomes filled with his contributions to the Press, all carefully annotated and indexed. His work as a carver, in later years in partnership with his sons, Greville Charles and Henry Turner, included the restoration, under the late Sir A. W. Blomfield and for the first Lord Aldenham, of the high altar screen at St. Albans and its refilling with statuary (see illustrations in the *BUILDING NEWS* for November 19, 1886, and June 28, 1889); the new reredos at St. Louis, U.S.A.; the restoration of very many of the fourteenth and fifteenth century oak screens and pulpits in the churches of Devon and Somerset; a colossal equestrian statue of William III. at Belfast; and memorials in our cathedrals and churches throughout the country, and not a few in American and Canadian buildings. For half a dozen years he sat on the city council of Exeter, and for a long time he was a churchwarden at St. Sidwell's. His chief interest, however, was in the Devon and Exeter Hospital, of which he had been governor for over forty years, and at which he was well known not only in the board-room but as a cheery and sympathetic bedside visitor. For very many

years he had given a Christmas feast in his studios to aged and indigent citizens, the number of guests corresponding with his own years, and it was a source of grief to him that this year illness compelled him to forego the custom. He had been a member of the Royal Archaeological Institute since 1880 and an Hon. Associate of the Society of Architects since 1884. We published a portrait and biography of Mr. Hems in our issue of June 27, 1890.

Second Lieutenant Arthur S. Baxter, of the 18th Middlesex Regiment (Pioneers), was severely wounded at Ginchy on December 8 last and died on the 2nd inst. at the Empire Hospital, Vincent Square, S.W. He was the second son of Mr. and Mrs. George Baxter, of Morella Road, Wandsworth Common, S.W. In September, 1914, he joined the 4th Seaforth Highlanders, and was invalided home from France. He afterwards obtained a commission in the 18th Middlesex Regiment. He was a Professional Associate of the Surveyors' Institution, and had passed the Fellowship Examination. At the time of his joining the forces he was engaged on the Land Valuer's staff.

A temporary camp church is to be erected on Southampton Common, from plans by Mr. Alfred F. Gutteridge, of Southampton, hon. architect. The estimated outlay is £600.

At the suggestion of the Cockburn Association, Mr. Douglas Strachan has offered to replace five windows in St. Margaret's Chapel, Edinburgh Castle—all of very indifferent character—with fresh ones of stained glass from his own designs. The offer has been accepted by H.M. Office of Works.

Mr. Justice Low has postponed the hearing of an action brought by the Leiston Gas Company against the Leiston-cum-Sizewell Urban District Council, which raises the important point whether the Defence of the Realm Act renders null and void contracts entered into for public lighting.

The second term of the current session at University College, Gower Street, London, began on Monday last in the Slade School of Fine Art, and will open to-morrow (Thursday) for the departments of the Faculty of Arts other than the Slade School, including the School of Architecture.

The corporation of Hirtlepool has received a communication from the Local Government Board stating that, while they have decided to confirm the Cleveland Street housing scheme, they are not in a position during the present crisis to sanction a loan for carrying it out. The estimated cost of the scheme is £15,000.

The demolition of the well-known house of the Six family in the Heerenracht, in Amsterdam, occupied by them since 1835, has now begun. Its disappearance is due to the carrying out of a city improvement scheme. The Six collection of pictures is being removed to the house on the Amstel, No. 213, which was bought by Professor Six, and has been arranged as a museum for these treasures.

In the presence of a numerous assembly of Masonic brethren, the remains of the late Mr. Robert Hitchmough, whose death took place on the previous Tuesday at his residence, Auburn, Woodlands Road, Aigburth, at the age of forty-two years, were interred at Allerton Cemetery on Saturday. The deceased was principal of the firm of Messrs. Hitchmough and Sons, contractors, Admiral Street, Liverpool.

At the last meeting of the Somersetshire County Council the Mental Deficiency Act Committee reported that they had had before them the plans of the proposed alterations and additions to the school buildings at the Long Ashton Union Workhouse at Flax Bourton, prepared by Mr. Hine, together with an estimate of the cost of carrying out the work, and a preliminary report by Mr. H. C. H. Shenton, civil engineer, as to the drainage arrangements. Mr. Hine had estimated that, including provisions for the heating and lighting of the building, with some laundry and cooking machinery, and also the execution of repairs to the old building, the work would cost, under normal conditions, £8,950. Mr. Shenton had stated that the cost of the drains and sewage disposal works would be about £1,500. They had resolved that the plans be submitted to the Board of Control. It was not proposed to put the work in hand until peace had been declared. The report was adopted.

## Correspondence.

## ARCHITECTS AND MUNITIONS OF WAR.

SIR.—The Royal Institute has been criticised by the Ministry of Munitions that there is a serious deficiency in the supply of skilled men for work in munition factories, and that this deficiency is particularly marked in respect of tool setters. The demand for such skilled workers is altogether greater than the supply at the present time; consequently it is imperative that suitable men should be trained at once for the extremely accurate work of setting up automatic and semi-automatic tools. It is necessary to train men for this purpose to a very high degree of accuracy. In the case of the manufacture of machine guns the limits are in the neighbourhood of one ten-thousandth part of an inch.

The experience gained from the professional men who are already assisting in this work proves that the most suitable men to be trained are of the more highly educated type. Arrangements have accordingly been made by the Ministry of Munitions for training men of this type. Such men will be given a course of training lasting two or three weeks, during which they will be paid £2 a week, and they will then be drafted straight into factories where they are most urgently required, and where they will be paid the standard rate of wages for the district for tool setters. This rate varies from £3 10s. a week to £5, according to the district.

The Selection Committee of the Architects' War Committee have been informed of this need, and have the matter before them in connection with the War Service Forms of those architects who are over military age or unfit for military service.—Yours faithfully,

ERNEST NEWTON,

President R.I.B.A.,

Chairman, Architects' War Committee.

## ARCHITECTS AS NOVELISTS.

SIR.—In reply to Mr. Simpson's letter in your last issue, the next most widely read of our novelists is, I should say, Mr. Hall Caine, the author of "The Deemster," "The Bondman," "The Christian," and many other works. He was brought up as an architect, but, I believe, never actually practised. He was a not infrequent and welcome contributor to your own pages in the sixties of the last century, as you doubtless remember.

So far as I know, the only other novel writer of our calling was the late Professor Kerr, whose somewhat curious story, "The Ambassador Extraordinary," you reviewed, with copious extracts, in your issue of September 19, 1879. I do not think it had a wide sale, but I have often laughed over the antics of Master Georgius Oldhouson, F.S.A., with his "Universal Gregorianism."

Of authors in other branches of literature, the architect whose single effort in poetry led us to expect more of the best sort from him was the late Mr. J. T. Bottle, whose tragedy, published only over his initials, you noticed in your issue of February 28, 1879. I remember the *Times* hailed its appearance as the work of a new poet of a very high order. I have re-read it many times with pleasure and admiration.

And also that other able work by that master of our art, of the great nation with which we are now so closely united in the great struggle against evil, *Violet le Duc*, "The Habitations of Man in All Ages." With architecture for its theme, that great book should be better known to contemporary architects than it seems to be. Surely Epictetus, the spirit of inquiry and progress, must have been the embodiment of the impulse which Sir Thomas Jackson, in his new book, assures us was the real mainspring of Gothic architecture, and Doxius, his opposite, the representative of all who would "rest and be thankful" in the dead remains of the "old styles"—I am, etc., KARRA.

The corporation of Birmingham have adopted a report by the Electric Supply Committee for the extension and equipment of the temporary supply station at Nethels at an estimated cost of £148,000.

## Our Office Table.

Mr. Lloyd George, the Minister of Munitions, has appointed Sir Howard Frank to be Honorary Adviser on Land Valuation to the Ministry. Sir Howard Frank, who was born in 1871 and educated at Marlborough, is head of the estate agency firms of Knight, Frank, and Rutley and Walton and Lee, and a director of Frank Livett and Son and the Norwich Union Fire Insurance Society. In farming and horsebreeding he takes a practical interest, being a member of council of both the Royal Agricultural Society and the Central Chamber of Agriculture and president of the Hackney Horse Society. Sir Howard Frank, who has travelled much in Europe, the British Dominions, and America, was knighted in 1914, when President of the Surveyors' Institution.

Among the officers recommended for gallant and distinguished service in the field in Sir John French's Despatch of November 30, we are pleased to note the names of Second Lieutenant (temporary Captain) H. P. G. Maule, F.R.I.B.A., of the Hon. Artillery Company, for many years the Master of the Architectural Association Schools, and of the firm of Messrs. Forsyth and Maule, Oxford Street, W.; temporary Lieut.-Col. A. B. Hubback, F.R.I.B.A., of the London Regiment, and of the Public Works Department, Singapore, Malay; and Major Peter G. Fry, L.R.I.B.A., Wessex Divisional Engineers, of High Street, Weston-super-Mare.

The exhibition of work by members of the Artists Rifles Officers Training Corps, which, as already stated, will be held at the Leicester Gallery from Saturday next to February 5, will include oil and water-colour paintings, sculpture, etching, enamelling, and black-and-white work. Among the exhibitors are Colonel W. B. Horsley, Commanding Officer of the 104th Provisional Battalion, Captain Charles J. Blomfield, F.R.I.B.A., Officer Commanding the Administrative Centre at Duke's Road, Euston Road, W.C., Captain Hall, and Lieutenants A. E. Cooper, W. Lee Hankey, and Adrien Klein. Non-commissioned officers exhibiting include Edward Handley Read, J. H. Thorpe, E. Pattison, W. P. Robins, G. Ackerman, Alfred Hayward, Paul Nash, Alexander Fisher, G. Cole, Lance Thackeray, and Marjose Pearce.

The Board of Agriculture announces that the Home-Grown Timber Committee have received a very large number of offers of timber, which are being dealt with as rapidly as possible. The classes of growing timber at present principally required by the committee are:—Scots and Corsican pine, silver fir, Douglas fir, and larch of good dimensions, and in lots of about 20,000 cubic feet and upwards; plantation ash of fair size, which will be accepted in comparatively small lots. Other hardwoods of good dimensions are also required, but, as a rule, these cannot be considered in small lots. The committee are also prepared to enter into arrangements with the owners of estate sawmills for the conversion of timber. They would be glad to be informed of sawmill plant that is idle or not fully employed, in order that, if possible, arrangements may be made for increased output. All communications should be addressed to the Secretary, Home-Grown Timber Committee, Craven House, Northumberland Avenue, W.C.

Mr. P. Trenham Maw, F.S.I., of Nutfield, writes to the *Times* pointing out that to impose an excess profits tax on home-grown timber would be essentially unjust. True, landowners are getting greater prices for Scots pine timber and ash than hitherto, but oak is not selling well. There is but little ash for sale, and it is chiefly the owners of Scots pine who are beginning to get a fair price for their timber. Mr. Maw says he had recently sold nearly 50,000 cubic ft. of Scots pine timber at an average price of 10d. per foot (string measurement), but this timber, which was well grown, and averaged about 3,000 cubic ft. to the acre, has all been produced at a dead loss to the owner if calculations of income and expenditure from the date of

planting are made at 4 per cent. compound interest. Furthermore, taxes have already been paid annually on a yearly assessment showing the supposed net average annual rental from the date of planting, which, however, is purely fictitious and far in excess of the real net rental equivalent yielded by the sale of timber. The big movement which recently has been set on foot for felling timber and so lessening imports will have a serious check if any unjust taxation is imposed through lack of knowledge of the real facts of the case. Mr. Maw recommends those interested in this matter to refer to his "Complete Yield Tables for British Woodlands," which shows clearly the injustice of imposing these new taxes on British timber.

At the last meeting of the Oldbury Urban District Council a report was presented upon the new street by-laws which will be applicable in connection with the Warley town-planning scheme. The surveyor, Mr. T. H. Shipton, stated that the present by-laws for new streets required a uniform width of 42 ft. Under the town-planning scheme the main arterial thoroughfares would have to be considerably wider than this, and the new by-laws would enforce a width of not less than 60 ft. In the case of new streets, where it was obvious there would never be a large amount of vehicular traffic, a width of 40 ft. would be enforced where buildings came up to the building line, but where buildings were set back 30 ft. from the centre of the road a width of 30 ft. would be allowed for the road, ensuring 60 ft. between the opposite rows of buildings. In certain main arterial thoroughfares the width would be 100 ft. The report was approved.

## STATUES AND MEMORIALS.

MEMORIALS TO FALLEN SOLDIERS.—Sir A. B. Kempe, Chancellor of the diocese of London, has granted a faculty authorising the erection of a tablet in the church of St. Margaret, Uxbridge, to the memory of Quartermaster-Sergeant Brian Heaton and Lance-Corporal Geoffrey W. Heaton, two brothers who have fallen in the war. He has also granted faculties for the erection of tablets in Christ Church, North Finchley, in memory of John William Dawson, London Rifle Brigade, for six years a chorister in that church, who was killed in action at Ypres; and in the church of St. Dionis, Fulham, in memory of Edgar Reginald Bromage, Duke of Cornwall's Light Infantry, who was killed in action at Ypres.

## TRADE NOTES.

Boyle's latest patent "Air-jump" ventilators have been applied to the new engine-house, Dunroby Mills, Guiseley.

In order to prevent water percolating the cement work of the propagation pits in the Botanical Gardens, at Glasnevin, Dublin, the powder Pullo has been employed with satisfactory results.

The directors of the London County and Westminster Bank, Limited, after making provision for bad and doubtful debts, and applying £472,412 in writing down investments, and making further provision for depreciation, have declared a dividend of 9 per cent. for the past half-year (less income-tax), making a total distribution of 18 per cent. for the year 1915, leaving a balance of £161,585 to be carried forward.

The twenty-second list of members, Lecturers, and students of the Royal Institute of British Architects who have joined R.M. Forces shows a total to date of 53 Fellows, 395 associates, 205 licentiates, and 244 students.

The city of Montreal propose to expend during this winter \$1,151,453 in the construction of sewers. About three-fourths of the work will be carried out in the north end of the city in St. Denis, Bordeaux, Notre Dame de Grace, Rosemount, and other wards.

Maine's twenty-five-mile Federal Aid Highway, running from Portland to Brunswick, and declared to be one of the finest roads in New England, was recently opened to traffic. The road is built entirely of bituminous macadam of the finest type of construction, and is a section of one of the most important arteries of travel in Maine. It is a part of the coast highway to Bath, Rockland, and all the shore cities and resorts, and is also one of the units of the Portland, Brunswick, Augusta, Waterville, and Bangor State highway.

## Building Intelligence.

BO'NESS, N.B. At a meeting of Bo'ness Town Council a letter was read from the National Electric Construction Company, London, requesting consent to a permanent extension of the plant at the Burgh Electricity Works in place of proposed temporary extension which recently met with the approval of the Secretary for Scotland. Plans and specifications of the new works were submitted by the company, and showed that the plan was to introduce a 500-kilowatt steam turbine engine, together with the extension of the power station, at a total estimated cost of £1,000. This is exclusive of boilers, and the extension when fully completed will involve an outlay of £14,000. The company stated this extension is imperative to meet the increased demand for power under the new agreement for public works. The council agreed to call in the services of an independent engineer to report at the electricity works on the need for the proposed extension.

## PROFESSIONAL AND TRADE SOCIETIES.

ART TRAINING IN WAR TIME.—In his presidential address at the annual meeting of the Art Teachers' Guild, held last week at the Guildhall, E.C., Mr. Henry Hudson, of Sherborne, said that if we as a nation were to be ready for the coming war in trade and in the arts of peace they must strenuously continue the work of education. To be the successful rivals of other countries our goods must be not only of the best possible quality, but also be most tastefully presented. Drawing was the mainstay of technical education, the indispensable language of craftsmen. To her art teachers, therefore, the nation must turn for help, and such help could not be fully ensured unless art schools and classes were generously encouraged in these days of tribulation. It seemed to be false economy to abolish, or even for a time to relinquish, the annual national competitions and exhibitions, which stimulated thousands of students. The cost was comparatively small, but a thing once stopped was difficult to set going again. Taking for his subject "Ideals in Art Education," Mr. R. Barrett Carpenter, Art Master, School of Art, Rochdale, in a paper afterwards read, said teachers had to consider how the child was to be aided in his instinctive desire for knowledge. In him must be laid the sure foundations of order and method, lest, having eyes to see, he saw not. He must be taught the great task of fitting things together, of observation and skilful self-expression. The records of past experience in thought and action must be opened to him, so that in the end he might be left to think and say and do for himself. He must be made able to choose, to pass judgment, unerringly, for the question of choice was one of the important problems of life. In setting to work to develop the habit of correct judgment in the young, they must certainly begin with resemblances and differences. By studying resemblances and differences the child would be fortified against the almost universal habit of exaggeration. Mr. Carpenter urged that the study of colour should be adopted as a means for developing sound judgment. The study of colour widened the range of conscious vision, and that breadth of view or sight would enable the student to avoid the isolation of objects, to prevent the divorce of colour from its surroundings, to combine diverse things, and bring colour into the just relationship it always openly acknowledged to cultured eyes.

The New South Wales Parliamentary Standing Committee are considering the erection of law courts in Sydney. The estimated cost is £742,444.

In response to the application of the Middlesbrough Corporation for power to borrow £43,000 for new mains, meters, and fittings, the Local Government Board have sanctioned only sums amounting to £5,153, that being the sum actually expended in new mains and for meters.





## TO ARMS!

## 4th BATTALION CENTRAL LONDON VOLUNTEER REGIMENT.

Orders for the week, by Sub-Commandant C. Stanley Peach (Acting Commandant).

OFFICER FOR THE WEEK.—Platoon Commander J. R. G. Williamson.

NEXT FOR DUTY.—Platoon Commander P. A. Bick.

APPOINTMENTS.—The following Officers will act as Entrenching Officers, each taking a Sunday in rotation:—Company Commander E. J. Castell, Platoon Commander N. E. Brown, Platoon Commander C. H. C. Bond, Platoon Commander G. H. Parker.

GENERAL PARADE Saturday, 15th inst., at Chester House, 2.45 p.m.

SCHOOL OF ARMS. Tuesdays, 6 to 7 p.m.

LECTURE. Thursday, 13th inst., at Chester House, 5.45 to 6.45 p.m. By Company Commander E. J. Castell, for Officers and N.C.O.s.

DRILLS AND PARADES. For details of all Drills and Parades see Notice Board at Headquarters.

ENTRENCHING PARADE.—Sunday next, 16th inst. Entrenching Officer on duty, Platoon Commander N. E. Brown, Victoria Station (L.B. and S.C. Railway), indicator board, 8.35 a.m. sharp, for Special Train 8.50 a.m. Uniform, haversacks, and water-bottles. Mid-day rations to be carried. Return to town about 6.15 p.m. Railway vouchers will be provided.

By order,

MACLEOD YEARSLEY, Adjutant.

CORRESPONDENCE.—All correspondence should be addressed to the Orderly Room.

DRILL HEADQUARTERS AND ORDERLY ROOM.—Chester House, Eccleston Place, S.W.  
January 12, 1916.

## MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY (Today).—Manchester Society of Architects. "The Builders' Point of View," by James Brown, 6.30 p.m.

THURSDAY (Tomorrow).—Royal Society of Arts. "The Romance of Indian Surveys," by Sir Thomas H. Holch, 4.30 p.m.

Society of Architects. Annual Meeting. Presentation of Council's Report and Balance-sheet, 5 p.m.

FRIDAY (Jan. 14).—Town Planning Institute. "Open Spaces and Town Planning Schemes," by Lawrence W. Chubb, 8 p.m.

Glasgow Architectural Craftsmen's Society. "Central Heating Apparatus for Small Residences and Apartment Houses," by P. S. Taylor, 7.45 p.m.

WEDNESDAY (Jan. 19). Royal Society of Arts. "The Common Lands of London: the Story of their Preservation," by Lawrence Chubb, 4.30 p.m.

THURSDAY (Jan. 20). Architectural Association of Ireland. "Belgium," by H. Allberry, 8 p.m.

ARLBA. 15, South Frederick Lane, Dublin, 8 p.m.

The rural district council of Droitwich have appointed Mr. Adams as road surveyor.

At the University of Oxford diplomas in Forestry have been awarded to Harry C. MacGill, Pembroke College; John W. Nicholson, B.A., Wadham College; and John M. Cowan, University, M.A., B.Sc., Edinburgh.

The Corporation of Cheltenham have expressed their willingness to hand over two acres of land at Furth Long Hill, near the Tewkesbury road, to the Debney hospital trustees, as a site for a smallpox hospital.

The minimum age for enlistment into the Inns of Court O.T.C. and the 28th (County of London) Battalion the London Regiment (Artists' Rifles) O.T.C. is now 18½ years. Paragraph (2) of Army Order 186 of 1915 has been amended accordingly.

The Royal British Colonial Society of Artists have erected a tablet in the church of King Charles the Martyr at Falmouth to the memory of Mr. William Ayerst Ingram, the founder and for twenty-six years the president of the society. The memorial is the work of Mr. Alfred Drury, R.A., and was unveiled on the 4th inst. by Mr. G. P. Jacob-Hood, vice-president of the society, whilst Mr. T. C. Gatch, the president, gave a short address.

A font cover, part of the memorial subscribed for by the parishioners of St. David's, Exeter, to their late vicar, Rev. C. J. Valpy French, was dedicated on Wednesday evening by the Bishop of Crediton. The other part of the memorial, completed some months ago, consists of a stained-glass window in the church of St. Michael and All Angels. The font cover, which has been erected, at a cost of £220, to the design of the architect of the church, Mr. W. D. Caroe, F.S.A., Westminster, is of Devonshire green oak, in conformity with the style of the building.

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Ellingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

\* Drawings of selected competition designs important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc., we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither then nor is much good to illustrate buildings which have been some time executed, except under special circumstances.

Telephone: Gerrard 1291.

Telegram: "Timeserver, Estrand, London."

## NOTICE.

Bond copies of Vol. CVIII. are now ready, and should be ordered early (price 12s. each, by post 12s. 10d.), as only a limited number are done up. A few bond volumes of Vols. XXXIX., XL., XLVI., XLIX., LIII., LXI., LXII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., XCVII., XCVIII., XCIX., C., C.I., C.II., C.III., C.IV., C.V., C.VI., and C.VII. may still be obtained at the same price; all the other bond volumes are out of print.

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Most of the back issues are to be had singly. All back issues over one month old will be charged 6d. each, postage 1d. Subscribers requiring back numbers should order at once, as they soon run out of print.

Handsome Cloth Cases for binding the BUILDING NEWS, price 2s., post free 2s. 3d., can be obtained from any Newsagent, or from the Publisher, Ellingham House, 1, Arundel Street, Strand, W.C.

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The special rate to Canada is £1 3s. 10d., 5dols. 80c. for 12 months, and 11s. 11d.—2dols. 90c. six months. Our Direct Subscription Agents for Canada are Messrs. Sells, Ltd., 302, Shagbushy Buildings, McGill Street, Montreal, who will receive Subscriptions, £1 3s. 10d. per annum, on our account.

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Advertisements for the current week must reach the office not later than 3 p.m. on Tuesday. Front-page advertisements and alterations or stop orders for serial advertisements must reach the office by first post on Monday to secure attention.

RECEIVED. H. N. S. Co., Ltd.—W. H. H. Ltd.—I. C. S.—H. D. P.—Major W. L. J.—J. H. T. and Co.—P. W. W. and Co.—E. S. L. Co., Ltd.—R., Ltd.—W. S. Co.—H. A. C.—A. C. and Co.—C. and Co.—W. W. and Son, Ltd.—E. McN. and Co., Ltd.—S. and Sons—J. S.—G. I. F. Co., Ltd.—L. and N.W.R. Co.—D. J. S. and Co.—E. B. D. and Son.

A. L. F.—No.

R. K. W.—Thank; yes.

ORU.—A little outside our province.

M.—Thanks; we will do our best with them if sent.

STOCKS AND SVKRS. We should wash it over with a very thin coat of Portland cement, mixing a little lampblack to match the shade of the old work. But—as here in London—if it is near your address it will not take long to darken.

## FOR

Olivers'

Seasoned

Hardwoods,

## APPLY TO—

WM. OLIVER & SONS, Ltd.,

120, Bunhill Row, London, E.C.

## TENDERS.

\* Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

ABERDEEN. For supplying various articles and work, as required, for year 1916, for the town council. Accepted tenders:—

Cast iron:—Mackinnon, W., and Co.  
Malleable iron and ironmongery:—Cruckshank and McIntyre.  
Brasswork:—Bryce, H., and J.  
Lead-and-tin pipes:—McRobb, A.  
Tinsmith work:—Buyers, P.  
Painter-glazier work:—Donald, G., and Sons.  
Carpenter furnishings:—Fleming, J., and Co., Ltd.  
Bricks and Limes:—Scaton Brick and Tile Co., Ltd.  
Portland cement:—Henderson, J. and W., Ltd.  
All of Aberdeen.

BIRMINGHAM. For works in connection with the scheme for the erection of temporary generating station at Nechells, for the electric supply committee. Accepted tenders:—

Three boilers, with superheaters, chain-grate stokers, chimney, induced draught fans, etc.:—Babcock and Wilcox, Ltd., London £17,000 0 0  
Structural steelwork:—  
Key, Ltd., E. C. and J. . . . . 5,800 0 0  
Cooling towers, including foundations:—  
Davenport Engineer Co., Bradford 5,550 0 0  
Foundations, engine and boiler house:—  
Shardlow, J. J. . . . . 3,500 0 0  
Coal-handling plant, overhead telegraphic system:—  
Morris, H., Ltd., Loughborough, . . . 3,500 0 0

BIRMINGHAM. For building a factory in Great King Street, for Messrs. F. Lucas, Ltd.:—  
Whittall, Lancaster Street, Birmingham (accepted).

BRISTOL. For various works and stores and fittings, for the docks committee. Accepted tenders:—

Firehose and fittings for new firefloat at Portishead Dock:—  
William Ross & Son Co., Manchester.  
New motor starter for 2-ton electric capstan, at Shed Q, Royal Edward Dock:—  
British Thomson-Houston Co., Rugby.  
New set of coils for cooler, old cold stores, Avonmouth Dock:—  
Lunde British Refrigerator Co.  
Cast-iron wedge type keel blocks (14 sets) for the graving dock, Royal Edward Dock:—  
Bristol Foundry Co.  
Indianrubber and canvas elevator belt (132 ft. of 1-in. by 4-ply):—  
Irwell and Eastern Rubber Co.

CASSOCK. For supply of refined tar, for the urban district council:—  
Brownhills (Chemical Works Co., Ltd., Brownhills, £2 2s. 6d. per ton (accepted).

ESTERBONE. For additions to Budley House, the Avenue, for Mrs. Herbridge. Mr. P. D. Stonham, architect:—  
Boddy and Addison (accepted).

ESTERBONE. For additions to Elm Tree, the Gulls, for Mrs. Wainwright:—  
Jennings, G., and Co., Ltd. (accepted).

HAMPTON-ON-THAMES. For supplying tubes for fuel economiser, for the Metropolitan Water Board. Accepted tenders:—  
Scottish Tube Co., Ltd. . . . . £507 10 0  
For lead for same:—  
Farnill, Geo., and Sons, Ltd. . . . . 46 4 7

KEIGHLEY. For continuing the overhead tramway equipment for trolley vehicles from the existing terminus at Hebdon Road, Haworth, to Lower Town, Oxenhope, for the Keighley Town Council:—  
Clough, Smith and Co., Ltd. (accepted).

# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

Effingham House,

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### ELECTRICITY FOR BUILDERS.

Some of us probably have not forgotten the pretty fairy story in our earliest schoolbooks about Aqualenus, Ventosus, and Vaporifer, and the stupidity of the silly people of the past days who hesitated to avail themselves of the benevolent services of the three friendly giants who in successive ages sought to relieve mankind of the drudgery of mere muscular labour, and thereby to reduce the cost of the necessities and conveniences of life. In these days we seem all to a great extent as blind to the still more marvellous capabilities of the all-potent geni whom Science, albeit as yet puzzled as to his nature, has enlisted as the most willing of workers for all who have their wits about them. And of those with their eyes least open, surely British builders, who are the loudest to complain, and not without reason, of the shortage, increased cost, and decreased reliability of human labour, occupy a tall niche in the great temple to Content-with-things-as-they-were, which is the Sunday sleeping-place for most of us.

It is nearly time we woke up to what we are missing, and hammered away at the gates of some of the none-too-wide-awake servants of the giant, who, perhaps, after all, are only less inclined than their brethren in Germany and America to help us because the have found us so irresponsible to their offers. In America, especially, the service to which electricity can be applied in the construction of buildings, both small and large, and of any material, is increasing and is found indispensable by builders who appreciate the worth of the electric motor-driven devices now placed at their disposal. We have been particularly interested in a paper read a few weeks since by Mr. J. E. Van Hoosear before the Builders' Congress at San Francisco, in which he summarised some of the electrical aids now being utilised from the clearance of the building site to the last operation of polishing the floors.

Starting with the pioneer work of clearing a heavily wooded site that is frequently encountered in America, a motor-driven wood saw is set up to work into cord wood any timber that may be standing on the premises; next, electricity is used to explode powder in removing stumps or rocks from the site; the excavation is accomplished by means of a motor-driven excavator which deposits the dirt into trucks that haul it to the dumps and in return deliver the rock, sand and cement that are used in the construction of foundation and walls. In a great number of places where the excavation is deep, large quantities of water accumulate, and it is necessary that this water should be removed in order to proceed

with the foundation work, this is easily accomplished by means of a motor-driven pump, which needs very little attention, as it can be equipped with an automatic float switch, which will keep the water out night and day. From this stage on, a motor-driven saw is found very serviceable to do all the rough sawing necessary in the construction of the concrete forms and the building frame.

The concrete used for foundation walls, floors and walks is mixed in a motor-driven mixer, and hoisted to different levels for distribution by means of a motor-driven lift supplied with a special dumping bucket. The bricks and other materials are also hoisted to the several floors by means of electric hoists, thereby saving time and adding to the efficiency. Some data have been gathered in connection with concrete work in regard to the quantity of power required in mixing and other work directly connected with it. In a reinforced concrete loft building of three stories, 3,000 yards of material were used. A one-yard mixer driven by means of a 15-H.P. motor handled the material, a saw driven by a 5-H.P. motor cut all the lumber used in making the forms; these two motors consumed a total of 2,000 kilowatt hours, or about 1.5 yards per kilowatt hour. In a steel structure concrete building of eighteen stories, using 1,782 yards of material, 829 kilowatt hours of electric current were used, showing a consumption of 1 kilowatt hour for each 2.15 yards mixed. The last-named job was done by a contractor who owned several gas-engine-driven mixers, which he had been using for a number of years. He set one of them up to do this work, and after running a couple of days it developed troubles, causing delay and expense. An electric motor was then secured to complete the work, which it did in the usual satisfactory manner. Now he, like many others who have taken the interest to look into the merits of electric-driven machines, will have no other mode of operation.

The plumber has not been left behind, and if the job is large, he will have motor-driven pipe- and thread-cutting machines on it to help him with his work.

If the outside walls are to be plastered this can be speedily accomplished by means of a motor-driven compressed air plastering machine, which will lay on a coat of cement plaster to any thickness desired. If the building is of steel structure the beams can be hoisted and placed by means of an electric-driven hoist. In connection with the placing of steel, it has been the opinion of a large majority of those directly interested in this work that the operation can only be accomplished with satisfaction by means of the steam donkey engine. Precedent, like a rut in a road,

is one of the easiest things to follow, and one of the most difficult to get away from. Upon a close study of the matter it is found that the reason for this contention is they either own engine-driven hoists or have tried to do their work with improvised electric-driven apparatus, which was found unsuited to the task, and, being dissatisfied with results, would not listen to anyone regarding the up-to-date motor-driven appliances, that have speed and control equal to the best engine-driven hoists. It would be well for anyone who is contemplating getting new equipment to investigate the merits of the electric hoist. After erecting the steel, the rivets that hold it together are driven home and headed by means of hammers operated with compressed air, which is supplied by a motor-driven compressor. The plaster which finishes the walls is mixed by motor-driven machinery, that has been found to give a more thorough mix than was obtained by the old method. In marble work motor power is found necessary from start to finish, even to the chiselling and drilling that is necessary in the process of setting it in place. In fine interior hardwood finish the electric glue-pot is found indispensable, and is not a fire hazard.

In polishing large floors of ball-rooms, halls, etc., portable scraping and sanding machines are operated by motors that form a part of the apparatus. No other mode of drive would serve the purpose, because of the necessity of cleanliness, which could not be obtained if coal or gas were used for the purpose of motive power.

A unique method of mixing and delivering concrete, differing considerably from the old way, is used to advantage in cases where very heavy walls are to be built, or in places where the forms cannot be reached from above, and is accomplished by means of compressed air. There are two quite distinct patented ways of doing it. The first requires the usual motor-driven mixer, which in turn deposits the mix of about 20 cubic feet into the upper end of a cylinder-shaped tank 4 ft. in diameter and 8 ft. long, cone-shaped at the lower end and connected with an 8 in. pipeline, that delivers the charge to the forms, that may be located a considerable distance away, in some cases as far as 2,000 ft. The charge is driven from the receiver by means of compressed air under 100 lb. pressure to the square inch at a rate of one charge per minute where the distance is around 300 ft., or about two minutes where the distance is 1,500 ft., and requires a 200 H.P. motor to drive a 1,200 ft. air compressor delivering at 125 lb. pressure per square inch. The other method uses a smaller tank with 5 in. delivery pipe; the charge of about 10 cubic feet of sand, rock, cement, and water is delivered direct into the tank, no mix-



ing machine being used. The cover is then closed and the compressed air turned into the tank and forces the charge up to the desired location. In passing through the pipe-line the material becomes thoroughly mixed. Both of these machines have been used on large tunnel jobs in San Francisco with satisfactory results in cost of delivery of material and quality of work, and there is no reason why they should not be used in building construction as satisfactorily.

But they will not be here at home till some American or German firm comes over here to build the machinery and show us how to use it; and then, probably, we shall prefer to let foreigners do the work.

#### ARTISTS' RIFLES EXHIBITION OF PAINTINGS AND ETCHINGS.

The creditable exhibition of paintings and etchings by members of the Artists' Rifles at the Leicester Galleries, Leicester Square, W.C., will deservedly attract all readers, many of whom have close personal relations with the corps, which, from its foundation, took at once highest rank among the old Volunteer regiments for efficiency, and which, under the inspiration of its present commanding officer, Colonel Shirley, has so abundantly justified the eulogies of Lord French of the unparalleled services rendered by the second battalion as a training corps for officers in the field. The "wonderful work"—as Lord French termed it in his recent remarks, which we published on p. 743 of our issue of December 29 last—well justified his cordial farewell and his confident anticipations that it will continue to be done till the end of the campaign. Many years ago, in the early days of the corps, we remember at one of the meetings of the Architectural Association Colonel Edis, under whose subsequent long and able command the regiment attained its high reputation, humorously concluding an appeal for recruits by remarking that the intimate relations of Mars and Venus were alone sufficient to justify his reminder that those devoted to the pursuit of beauty were bound to qualify themselves as adepts in martial arts of defence. That the highest fame as students and teachers of the duties of the patriot-soldier is no bar to-day to the cultivation of the beautiful is abundantly proved by the hundred and twenty-nine exhibits at the Leicester Galleries, every one of which, ere the exhibition closes on February 5, will find an appreciative purchaser, hereafter to be congratulated on his acquisition of a work of art for ever associated with memories of the stern times we are living through.

Cadet Ernest Cole contributes four etchings—studies for sculpture (1, 34, 36, and 37) and two works in wax, "Adam and Eve Mourning the Death of Abel, Cain Repentant" (126) and "A Woman Created" (127). Second Lieut. W. Lee Hankey sends "The Knitting Lesson" (2), "The Flight from Belgium" (9), "The Belfry, Bruges" (50 and 62), "Luxembourg" (77), "France in 1914 1915" (78), "On the Thames near Wallingford" (81), "Bedouins at Diport" (82), and the "Artists' Billets, Baillie" (87), a variety of subjects as evident as the skill with which each is handled. Second Lieut. Adrian B. Klein sends a view of "St. Omer from the Abbey" (3), "Flemish Mill, Ypres" (70), and "Betherhuth" (112). Lance-Corporal A. H. Mason has a series of studies, "The Landlord's Daughter" (4), and four others (23, 24, 25, and 43). Capt. Chas. J. Bloomfield's subjects are all architectural. "Road Screen at Swaffham Church" (5), "House at Stanstead,

Essex" (39), "Wellington College New Dining Hall" (40), and "St. Mary's Church, Welwyn, Herts" (58). From Lance-Corporal W. P. Robins come "A Shed by the Stour" (6), "An Interior of a Barn at Datchworth" (7), "Drivers' End" (14), and "Interior of a Barn" (31). Cadet John Wheatley is represented by "Study for a Painting" (8), "Mother and Child" (12), "Mother Holding her Child" (26), an etching, "Susanna" (48), and a "Portrait Study" (56). Lance-Corporal James Thorpe's contributions are "The Edge of the Moor" (10), "High Beech, Sept., 1915" (13), "Publicity" (16), a clever bit of caricature, "Arthur Morrison, Esq." (29), "Tom Binks" (41), "Handley Cross" (42), a "Souvenir of Westward Ho" (53), and "Home" (67). Lance-Corporal E. L. Pattison sends a good view of "Magdalen, Oxford" (11), "A Still Day" (19), "Evening" (20), "Le Chateau" (107), "La Fontaine" (114), and "The Deserted Barn" (122). Lance-Corporal Malcolm Osborne shows "After the Storm, Amberley" (17), "Evening Glory" (18), "Loches Castle" (21), and "Tons Market Place" (22), and "Chinon Castle" (55). Cadet Charles F. Wallis has "Sunlight in the Wood" (27). Sergt. C. Marescaux Perce sends "Mentone" (30), "Porta della Carta" (52), and "The Well Head" (80). Pte. E. Findlay Smith's contribution is "The Liner" (57), and that by Pte. Denys G. Wells "Mother and Child" (59).

In the Reynolds room some of the more ambitious efforts are gathered. Lieut. A. E. Cooper's portrait of Colonel Shirley, the C.O. of the battalion (101) will not be overlooked, neither will his sketch for decoration, "And He Healed Them" (113). Pte. Alfred Hayward shows several good things, "A Forest Glade, Radnorshire" (60), "Showery Morning, Wales" (64), and "La Petite Modiste" (105). Corp. Gerald Ackermann is numerously represented by "Richmond Castle" (61), "Across the Common" (63), "Corfe Castle" (65), "The End of Harvest" (90), and "The Downs above Steyning" (98). Capt. Gerard Chowne's "The Cliff" (66) and "Grasse" (89) are good. So are those by Pte. H. J. Lotz, "The Thames from Tower Wharf" (69), "The Bridges" (71), and "Brighton Houses" (75).

Among others, mention is due to Sergt. Garrard's lithograph, "The Pool of London" (304); a very good drawing of "The Proposed Government Building at Ottawa" (35), by Lieut. T. H. Hughes; "The Cranes" (33), by Pte. E. Findlay Smith; and Pte. E. Sharpe's two contributions, "Laon" (38) and "Ypres, April, 1914" (49). Capt. A. H. Hall shows "Christ Church, Hampstead" (44), "St. John's Chapel, The Tower" (45), "London Bridge" (46), and "The Tower of London" (47). Capt. Montagu Smith scores well with his "Entrance to a Temple, Yokohama" (76), "A Castle in Switzerland" (102), "A Norfolk Garden" (103), "The Shore, St. Jean-de-Luz" (116), and "A Sandy Coast" (119). Capt. C. W. Pike is well to the fore with "Sunset on the River Thames" (83), "Afterglow" (84), "From Under Hungerford Bridge" (86), and "The Blue Lagoon" (123). Pte. Paul Nash has three exhibits, "Tree Tops" (85), "Moonrise Over Orchard" (94), and "Silverdale" (95). "A Landscape" (88) by Pte. Theodore Newman (88) will not escape notice, nor will Sergt. E. Handley-Read's three contributions, "Somewhere in France" (93), "Willow Baby" (104), and "A Ferry, South Holland" (109). Lance-Corporal E. Dobson is well to the front with "The

Wooded Byway" (108), "The Lane, Cornwall" (111), "The Red Dress" (120), and "A Sultry Day" (124). Pte. W. H. Fisher's two subjects are "A Cloisonne Enamel Bowl" (128) and an "Enamel from an Illumination" (129).

Last, but certainly first in interest and general treatment, is Colonel Walter C. Horsley's "The Disciple, Mosque of Almas, Cairo" (110). This is a picture of a very high order, and one which we congratulate the Artists' Rifles on having been able to include in their excellent show, to which we wish every success.

#### THE SOCIETY OF ARCHITECTS.

The thirty-first annual meeting of the Society of Architects was held on Thursday evening at 28, Bedford Square, W.C., Major Edward C. P. Monson, F.R.I.B.A., President of the Society, in the chair. Mr. Harvey Robert Sayer, of Southampton, was elected as a member. The Report of the Council for the year ended October 31, 1915, covers a period of twelve months, during which time the first consideration of most people has been the call and response to active service of some kind tending to the successful prosecution of the war against the common enemy. At the last annual general meeting the view was expressed by a representative of the general body of members, that the Society must be prepared for a less favourable report on the next occasion. The council trusts that the members will agree, after a perusal of the report, that while all the departments of the Society's work have been affected by the war, its position both numerically and financially has been not merely maintained, but more firmly established. This has been effected by a policy of economy which, while not interfering with the essential activities of the Society, has enabled the council to conserve the individual interests of members, especially of those more seriously affected by the war than others, to consolidate the Society's resources, and to make what provision is humanly possible for future contingencies.

#### MEMBERSHIP.

Twenty-one candidates have been elected to membership by ballot of the members, and one graduate and six students have been admitted to the respective registers by the council. After allowing for deaths, resignations, lapses, removals, and transfers, the total membership on October 31 was 1,213, made up as shown. The previous year's figures are given for comparison:—

	1915.	1914.
Honorary members .....	30	29
Retired members .....	25	23
Members .....	1,003	1,014
Graduates .....	7	7
Students .....	118	155
Total .....	1,213	1,228

The Society has sustained the loss by death of the following members and students:—W. Herve Brown, York; H. W. Burton, London; Lance-Corpl. Piper James Carey, London; W. H. Gibson, Pretoria; J. E. Stanley Pritchard, Kidderminster; S. W. Kerslaw, London (hon. member); 2nd Lieut. C. H. Hudson, London; 2nd Lieut. T. E. Turner, London (students). Of these the following were killed in action—Lance-Corpl. Piper James Carey (member), 1st Battalion London Scottish, London; 2nd Lieut. C. H. Hudson, 1st King's Liverpool Regiment, London, and 2nd Lieut. T. E. Turner, 13th Battalion London Regiment, London (students).

#### MEMBERS ON WAR SERVICE.

Up to October 31 information has been received that ninety-five members, one retired member, one honorary member, three graduates, and fifty-four students are on active service. Very many members are over military age or otherwise ineligible, and of the junior members, that is to say, the graduates and students, three graduates out of seven and fifty-four students out of one hundred and forty-eight were with the Forces on October 31.

The war has had the natural effect of lessening the number of applications for membership.

The number is now (January 13, 1916), 290.

ship, but, on the other hand, the number of resignations due to the war is negligible, and the total resignations do not exceed the normal. On the whole, the council has every reason to be satisfied with the position as regards the maintenance of the membership strength during the first complete year of working under war conditions.

## FINANCE.

The audited accounts show that the total income for the year is £2,686, or £217 less than last year, but the income from subscriptions, the main source, is £2,190, slightly in excess of last year. The drop is principally in the revenue from publications, which is less by £129. The *Journal* cost the Society £133 as against £107 last year, and the *Year Book* £8 as against a slight profit the previous year. The omission of the usual social functions from the Society's programme was also a factor in the diminution of the income. To compensate for the reduced income, there has been a reduction in the expenditure of £347. The chief economies effected are, in general printing and stationery, £20; office postages, £55; printing and postage of *Journal*, etc., £113; and social functions, £141. There is also a decrease in general outgoings and repairs. Towards the close of the financial year still further economies were effected which will be reflected in the next account. The net result is a surplus for the year of £326, and a balance carried to the balance-sheet of £274 against £67 last year. The balance-sheet shows a reduction in the assets due to writing off depreciation on the premises and contents and on investments. The subscriptions outstanding are about double the amount of the previous year. This was anticipated and is due principally to the large number of members on active service, and to a less extent to circumstances caused by the war affecting other members. The council has placed the surplus for the year to the reserve for bad debts, thereby reducing the sundry debtors account to considerably less than last year, and at the same time making provision for contingencies in the coming year. The Society's holding in Consols has been converted into War Loan. The total investments have depreciated by about £60. There is a general decrease in liabilities and a reduction in the bank overdraft of £261. The entrance fees are some £100 less. The surplus for the year has been taken to reserve and £10 has been added to the Professional Defence Fund. The total surplus of assets over liabilities is £3,291, an increase of £39 over last year.

## REGISTRATION.

The Society's Parliamentary propaganda in this direction has been suspended during the war. The need of registration in the interest of all concerned becomes more evident every day. The war itself has provided an object lesson in the attitude of the Government towards the profession as a body in placing in other hands very much work in connection with war contracts, which might well have been allotted to architects, even if only as some compensation for its action of discouraging public and private expenditure on building operations. Until architects have a legal status and are properly organised they cannot expect to receive as a body that recognition which other protected professions can claim. The efforts of architectural bodies in other parts of the Empire are all in the direction of statutory registration, and in several of the Dominions success has been attained, and in others the question of registration is still being debated, with a view to further action at an early date. In Queensland there is a Registration Bill under consideration by the Cabinet, and the Royal Victorian Institute of Architects are pushing forward with a Bill based on the lines of the Transvaal Architects' Act. Similar steps are being taken in Tasmania and South Australia, and registration is understood to be in force in New York, Michigan, and Florida. These centres are in addition to others which have already secured registration. The list is incomplete, but it serves to show how the principle for which the Society has contended for so long and is still contending is becoming increasingly recognised by other architectural institutions, and by

those sections of communities having dealings with architects.

## EDUCATION.

The council at the commencement of the session renewed its permission for the Beaux Arts Committee to use the society's premises for its meetings, and the services of the secretary and of the clerical staff for carrying on its business. The war has affected the influx of new members into the atelier, but the work has been continued on the same lines as before, although under somewhat different conditions. The Sous Patron, M. Chaires, who has been with the army of France since the outbreak of war, has been seriously wounded. All the eligible members of the atelier have enlisted or obtained commissions, and several of the most promising of them have been killed in action.

## GENERALLY.

The three main principles which the council has endeavoured to maintain during the year in regard to the society's domestic affairs are: (a) economy without loss of efficiency in essentials; (b) consideration to members in temporary difficulties through circumstances caused by the war; and (c) foresight in regard to provision for future contingencies. The result of following this policy is reflected in the position of the society as shown by the report and statement of accounts. The society as a body has actively supported to the utmost of its power the professional organisations connected with recruiting, benevolence, and relief work. It is with some confidence of its general acceptance that the council presents its report to the members, and invites from them a continuance of that co-operation and generous support which alone has enabled these results to be achieved.

The President said the council and members could congratulate themselves on the very strong position, financially and otherwise, maintained by the society during a period of great stress. He trusted they would soon obtain a revision of the Articles of Association which would give larger disciplinary powers and prevent a man from entitling himself an architect and builder at one and the same time. So long as the Royal Institute was not prepared to accept the principle of registration the society must press forward to obtain statutory powers, but he thought he detected signs that the Royal Institute would ere long be converted to their views. When that was the case, and legal registration was secured, he for one thought there would be no reason for the separate existence of the society.

Mr. Robert G. Bare moved, and Mr. G. A. Sexton, F.S.L., seconded the adoption of the annual report, which was carried unanimously.

Mr. Herbert Freyberg, F.S.L., proposed the re-election of Messrs. Bolton, Pitt and Briden as auditors for the ensuing year, and this having been seconded by Mr. B. R. Tucker, was agreed to.

A vote of thanks to Mr. C. McArthur Butler, the Secretary, and to the members of his staff was proposed by Mr. Percy B. Tubbs, F.R.I.B.A., Past-President, and seconded by the President, and was suitably acknowledged by Mr. Butler, who mentioned that among those on service was the office boy, who was recently wounded and was now in hospital.

Mr. F. C. Ackwright has made a novel offer to the distillers surrounding Matlock. To the village which shows the best results in recruiting he has promised to give a village cross, and a keen competition is in progress.

Mr. W. W. Tasker, A.R.I.B.A., has been promoted Captain 1st Northumberland R.E. Mr. Leslie Barfoot, A.R.I.B.A., formerly of the R.N.A.S. and of the Inns of Court O.T.C., has been gazetted Lieutenant R.A.M.C.—Mr. W. Dathy Quicke, A.R.I.B.A., formerly of the London Rifle Brigade, has been gazetted 2nd Lieutenant, 1st Labour Battalion, R.E.—Flight Sub-Lieutenant Maurice Lyon, R.N.A.S., A.R.I.B.A., who was for six months at the Dardanelles on a balloon ship, was granted a commission on his return to England. He is now stationed at Southampton, preparing to go abroad again. Among his brother officers at Southampton is Flight Sub-Lieutenant Maxwell Ayrton, A.R.I.B.A., of Messrs. J. W. Simpson and Ayrton.

## SOME NOTES ON REINFORCED CONCRETE.

BY R. M. KEARNS, F.S.I.

(Continued from page 60.)

I now draw attention to an account given by Mr. Francis B. Shaw, in the *Builder*, 11th November, 1914, of "The Government Electric Power Station of Bangalore." Reinforced concrete lattice poles and lamp-poles are described and illustrated. I quote a few paragraphs.

"For the past eight years the Sansare Government have been using reinforced concrete poles of various types both for street and power lighting, and also for transmission lines. Previous to this teak poles and certain other woods more or less unattacked by the white ant were used.

"The wooden pole has usually a pointed or rounded end, and requires elaborate cross-tree timbering to prevent movement or sagging. Another point not usually taken into account is the elasticity of the reinforced concrete pole. With a teakwood pole line, if by reason of a tree falling on the line, or a fire, all the lines between two poles are broken, the wooden poles usually give in the ground, and require very careful straightening. With concrete poles this is not the case, as they are sufficiently elastic for the strain to be distributed along several poles on either side without any movement of the pole bases.

"This elasticity is one of the most remarkable characteristics of reinforced concrete.

A reference to a reinforced concrete cathedral may be of interest. The *Builder*, of November 13, 1914, gives some illustrations of a new Roman Catholic cathedral in Georgetown, Demerara, which is to take the place of the wooden structure destroyed by fire. Quoting from that journal: "The only building material in the neighbourhood is timber, and this is generally used in the colony. The Dutch in olden times, however, made bricks, and some are still imported at great cost; but the ground is so treacherous that it will not carry the weight of a building constructed in the ordinary way of bricks and mortar, i.e., with thick walls such as one is accustomed to in this country. Plenty of gravel and sand, however, can be had, and it has therefore been decided to build a ferro-concrete cathedral, as light as possible in construction, the weight of which will be carried on a concrete raft covering the whole area of the building, so as to distribute the weight evenly over the entire area. By doing this a maximum load of 16 cwt. per foot will not be exceeded, and the ground will carry this without difficulty."

The value of the concrete raft cannot be overrated. Without it the important monolithic character of a reinforced concrete building is, to some extent, in danger of being lost; but where it exists the building may assume one of the leaning attitudes peculiar to Swedish drill and yet be manoeuvred back safely to the perpendicular. The raft also forms a secure foundation for beam-props, which should always have unyielding bases. A case is known in which the roof of a one-story building entirely collapsed owing to the props sinking in soft ground.

Further information in respect of Georgetown Cathedral, with some illustrations of the reinforcements, may now be found in the *Builder*, of December 17, 1915. It appears that the raft, 5 ft. in depth, was "designed with a top and bottom slab, 4 in. or 6 in. thick, and divided up into panels about 6 ft. square, with longitudinal and transverse beams. Owing to the importance of getting as even a distribution as possible over the soil, the bottom panels were omitted in certain cases under the lighter portions of the building, so as to increase the unit load on the ground, and make it correspond approximately with the unit load occurring under heavier parts." The window tracery will be executed in concrete, and, as the journal states, "the whole building is full of interest, and forms a good subject for the study of advanced construction, from the theoretical and practical points of view."

An example of the application of reinforced concrete on a gigantic scale is described in the

\* Read at the ordinary general meeting of the Surveyors' Institution, held on Monday, December 10, 1916.

illustrated in *Kahner's Engineering* of November last. It is claimed in that journal that the Hotel Traymore, erected recently in Atlantic City, N.J., is the largest building of its kind in the world. It has accommodation for 1,400 guests, a fact which offers little support to the doctrine of "back to the land"; but as the building is of eighteen stories and capped with domes, the guests would seem to be encouraged to devote more attention to sky than land.

Quoting from the journal named: "The superstructure rests on reinforced concrete footings carried on piles, and in addition to being one of the tallest reinforced concrete buildings, it is one of the most complicated structures ever erected.

"Above the twelfth floor on the middle wing there is an interesting feature of design where a 45 ft. span fulcrum girder of reinforced concrete supports, by means of secondary cantilevers, a portion of the twelfth and thirteenth floors in addition to the weight of the roof immediately over this portion of the building. The twelfth floor below is suspended, while the thirteenth floor above is supported by columns resting on the ends of the secondary cantilevers.

"Probably a more complex system of framework or superstructure has never been attempted in reinforced concrete. As an instance of the irregularity in the run of the columns, it might be pointed out that of the 179 columns, 9 run from the footings to the top floor, all the others offset or stop before reaching the upper stories, and on several floors more columns are introduced than occur in the story before.

"The erection of the building was carried out with great rapidity, having been completed in nine months."

It would appear that this enormous hotel, with its bold and complicated construction, expresses the last word in regard to the adaptability of reinforced concrete.

According to the title of a technical journal, we are now living in the "Concrete-Cement Age." This is hardly the case, at any rate so far as this country is concerned, but it is very probable that reinforced concrete will be used increasingly for building purposes in the future: its many advantages—economical and hygienic—being already widely known and appreciated. It is possible that this material will develop the "Rectangular" style of architecture, in which the perpendicular lines of piers or counterforts are met by the horizontal lines of sill and string courses; but it seems to be specially adaptable for treatment in Eastern styles, with minarets, cupolas, and domes, and with heavy cornices and projecting balconies to give shadows and artistic effect. Architects will have occasion to bear in mind the stereotyped phrases "simple massiveness" and "noble proportions" when dealing with this material. It is to be hoped that they will not be afraid of plain surfaces, as we have no wish to see the external faces of concrete buildings "embellished" with series of bull's-eyes or set out in sunk or raised panels. Cottages should be designed to harmonise with their surroundings, and might be tinted with pleasing effect, or partly enclosed by trellis-work for supporting the climbing rose or geranium. Factories present a more difficult problem, and they will always look aggressively ugly if erected in rural districts where any structure that is not time-worn appears incongruous. There is no reason, however, why they should be of the skyscraper pattern—the huge perforated box placed on end—and neither is it necessary that the skyline should be broken by a horrible display of saw-toothed roofs. A little ingenuity, stimulated by some consideration for the owners of adjoining property and the feelings of the passing stranger, should render it possible to build on utilitarian lines without creating monstrosities at sight of which a lover of rural scenes is brought to a standstill with an indescribable sense of pain.

Let us see to it that our reinforced concrete buildings are as beautiful as art can devise and funds permit. Mistakes have been made in the past: they have taught us much, but there is still much to learn. We must, therefore, press on to a fuller knowledge of this

wonderful building material—of the science that governs its construction and the art with which it should be applied. Difficulties will confront us, but they will not be so formidable that they cannot be overcome.

"The distant mountains that appear  
Their solid bastions to the skies  
Are crossed by pathways that appear  
As we to higher levels rise."

#### MIDLAND BUILDING TRADES EMPLOYERS.

The annual meeting of the Midland Centre of the National Federation of Building Trades Employers of Great Britain and Ireland was held in Birmingham on Thursday. The president, Mr. Ralph Webb, Birmingham, occupied the chair. The annual report stated that, speaking generally, the condition of the building trade in the Midland centre during the past twelve months had been very unsatisfactory.

The Amalgamated Society of Wood-cutting Machinists, the United Builders' Labourers' Union, and the Electrical Trades Union had been admitted to the Conciliation Board scheme, and applications for admission had been received from the Navvies', Builders' Labourers', and General Labourers' Union, and the Amalgamated Slaters' and Tilers' Provident Society. The Operative Bricklayers' Society (London) had been readmitted to the scheme. The associations affiliated to the centre now numbered twenty-three—a decrease of one, the small association that had had for some years a struggling existence at Long Eaton having become defunct. The membership of the branches was on the whole maintained. The Birmingham Association was still advancing, registering a total membership of 291, as against 268 the previous year. The individual membership of the centre was still limited to three firms. The accounts showed a balance in hand of £95.

The report was approved, and the officers for 1916 were appointed as follows:—Mr. E. T. Doleman (Nottingham) president, Mr. C. Garlick (Coventry), and Mr. G. Elvins (Birmingham) vice-presidents, Mr. H. Willcock (Wolverhampton) treasurer, and Mr. F. G. Hodges (Burton-on-Trent) and Mr. William Moffat (Birmingham) auditors.

#### RECTIFYING AN ERROR IN ACCEPTED TENDER.

At last Wednesday's meeting of the Stoke-on-Trent Board of Guardians an animated discussion arose on a recommendation by the Building and Estates Committee that a certain final payment be made on the architect's final certificate to the Brightside Foundry and Engineering Company in respect to extra sums to the heating system in the workhouse and the nurses' home extension, amounting to £1,745 12s. 1d., the original estimate of cost having been £1,864. The Brightside Company having made application to rectify an error of £90 in their tender in respect to the hot-water installation, the committee recommended that they should be paid an additional amount of £60 over and above the amounts of the final certificate in settlement of their claim. The Rev. A. S. Langley, chairman of the Finance Committee, moved that this latter recommendation be deleted, which he urged would be the only honest and proper thing to do with the ratepayers' money. Mr. Harrison seconded the motion.

The Rev. E. H. Rogers supported the recommendation of the committee, urging that they owed to the firm a fair, honest, and legitimate consideration in regard to a bona-fide error in their tender. Mr. Hackney elicited that there was no precedent for the recommendation of the board in this instance. The discussion was continued at great length, and a number of amendments were suggested, but in the result the recommendation of the committee was carried by a considerable majority. In consequence of the decision arrived at, Mr. Langley gave notice of his resignation as chairman of the Finance Committee.

## Building Intelligence.

**OLD SWAN.**—A new church of St. Paul has just been built at Old Swan, Liverpool, from designs by Mr. G. Gilbert Scott. It is the successor of old St. Paul's Church, St. Paul's Square, Liverpool, built in 1769. Half a dozen years ago the Lancashire and Yorkshire Railway Company, who are the owners of adjoining property, anticipating that they would some day want to extend their Exchange Station, opened negotiations for the purchase of the church; and as the fabric was said to be unsafe a bargain was made and ratified by Parliament in 1910, whereby the Lancashire and Yorkshire Railway Company bought the church for £15,000, the amount to lie at interest at 5 per cent. until required. Among the special gifts to the new building are altar, altar cross, candlesticks, and organ, an instrument which cost over £1,000.

**SHEFFIELD.**—There is a serious housing famine in Sheffield, due to the thousands of immigrants attracted by the high wages paid for work on munitions, while streets of dwellings have been demolished to provide sites for extensions of steel works. The City Council have decided to erect permanent and temporary homes and hostels at a cost of about £300,000. Unoccupied warehouses are being turned into barracks for single men. The Lord Mayor's appeal to people who are not ordinarily lodging-house keepers to accommodate munition workers in their homes has brought about 700 responses. Over 260 permanent homes are to be built at once on estates at Winobank owned by the municipality. The first of these will be ready in April. The houses will cost on an average £334 each, including street and sewer work, or a total of £86,500, and they will be let at from 6s. to 8s. 9d. a week, and towards the interest the Ministry of Munitions will contribute 20 per cent. Temporary houses, hostels, and colony blocks will be erected, accommodating 4,631 workers, at a cost of nearly £200,000, the entire cost of construction being met by the Government.

There are now 429 members of the London Architectural Association serving with the forces.

Mr. George Mair, builder, Finchdechy, died on the 10th inst., aged seventy-one years. He was attending to business up till within three weeks of his death.

Greenock Corporation have decided to erect cottage houses for workers at the east end of the town, estimated to cost £35,000, of which the Admiralty is willing to pay a share.

The borough surveyor of Rotherham, Mr. T. P. Collinge, has received instructions to prepare a scheme for converting the buildings at Midwarke pumping station into dwelling houses.

Mr. H. M. Cobb and Mr. Edwin Savill, members of the Council of the Surveyors' Institution, have recently been appointed by the Army Council to be Consulting Surveyors to the Eastern Command.

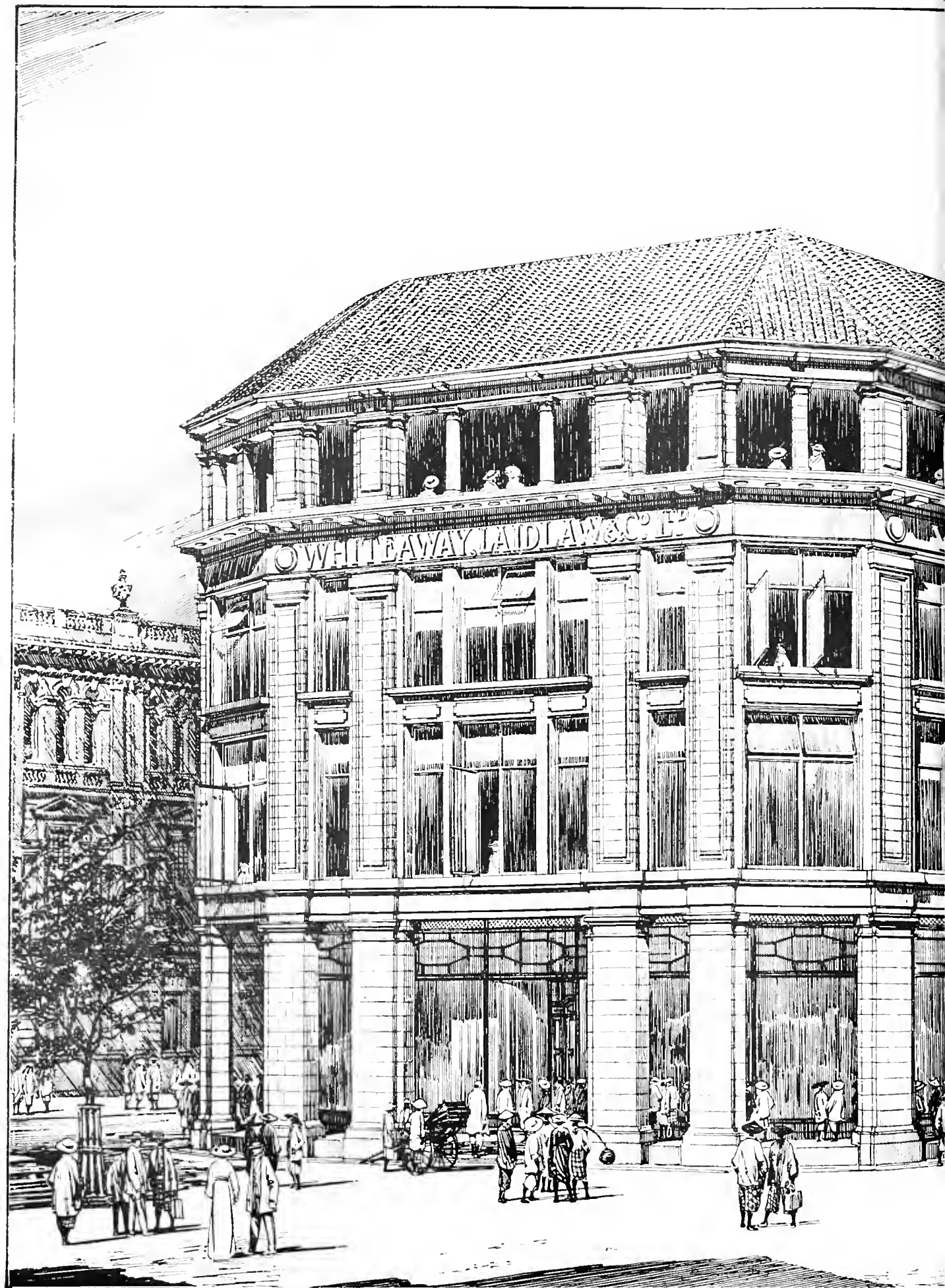
Lieut. Colonel E. G. Mercer, 1st London Regiment (T.F.), son of the late Mr. E. J. B. Mercer, for many years secretary of the Bath Master Builders' Association, has received the distinction of C.M.G. for military services.

The corporation of Nelson, Lancs., have approved of a proposal for a 30-ft. street between Southfield Street and Wennington Street, the scheme including also the dedication of a plot of land which will be laid out as an open space.

The board of management of the Newland Orphan Homes, Newland, Hull, are considering the possibility of building and equipping a domestic training home for twenty senior girls, with a laundry and stores in proximity, at a cost of £5,000.

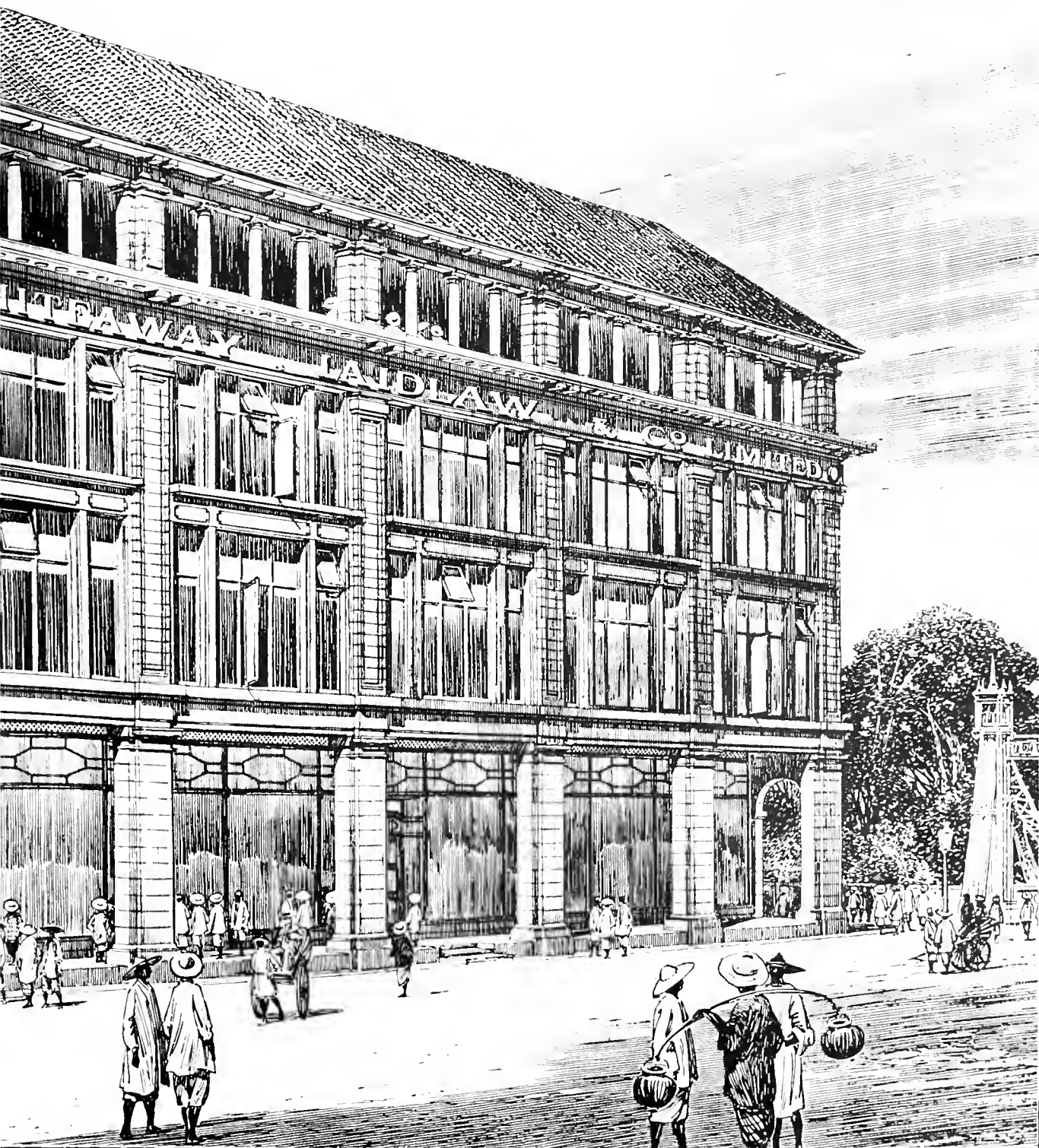
To the temporary buildings at the Norfolk and Norwich Hospital has been added a recreation hall, the gift of Mr. Sanroft Holmes, which was dedicated last week by the Bishop of Norwich. It is built externally of asbestos sheeting, with matchboarding on the inside; its dimensions are 50 ft. by 25 ft.; and its lighting is from the roof. The architects were Messrs. E. Boardman and Son, of Norwich, and the builders were Messrs. J. S. Smith and Son.





NEW PREMISES, SINGAPORE. FOR MESSRS. WHITEAWAY, LAIDLAW & CO. LTD.





AND CO., LIMITED.—Messrs. HERBERT O. ELLIS and CLARK, Architects.

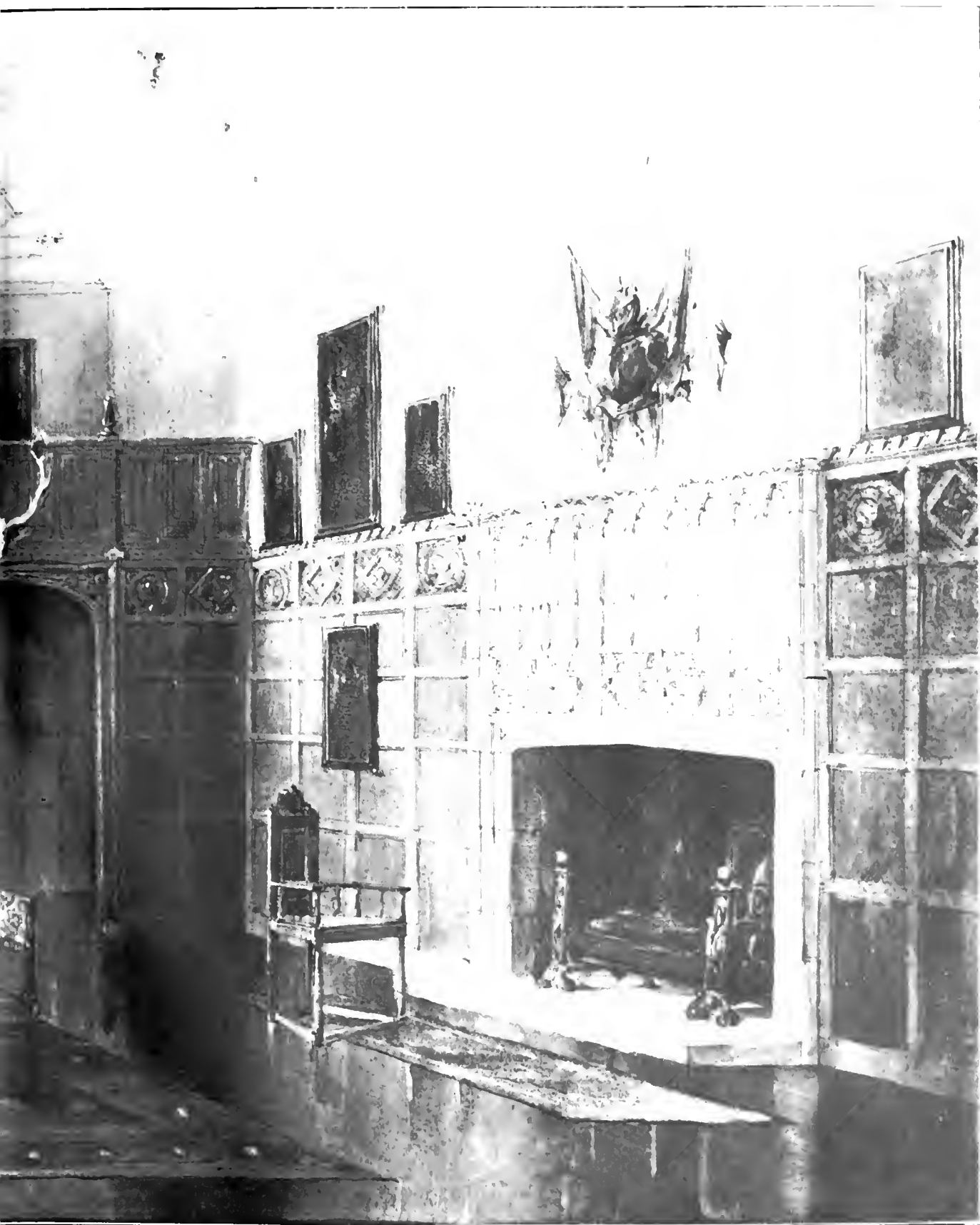








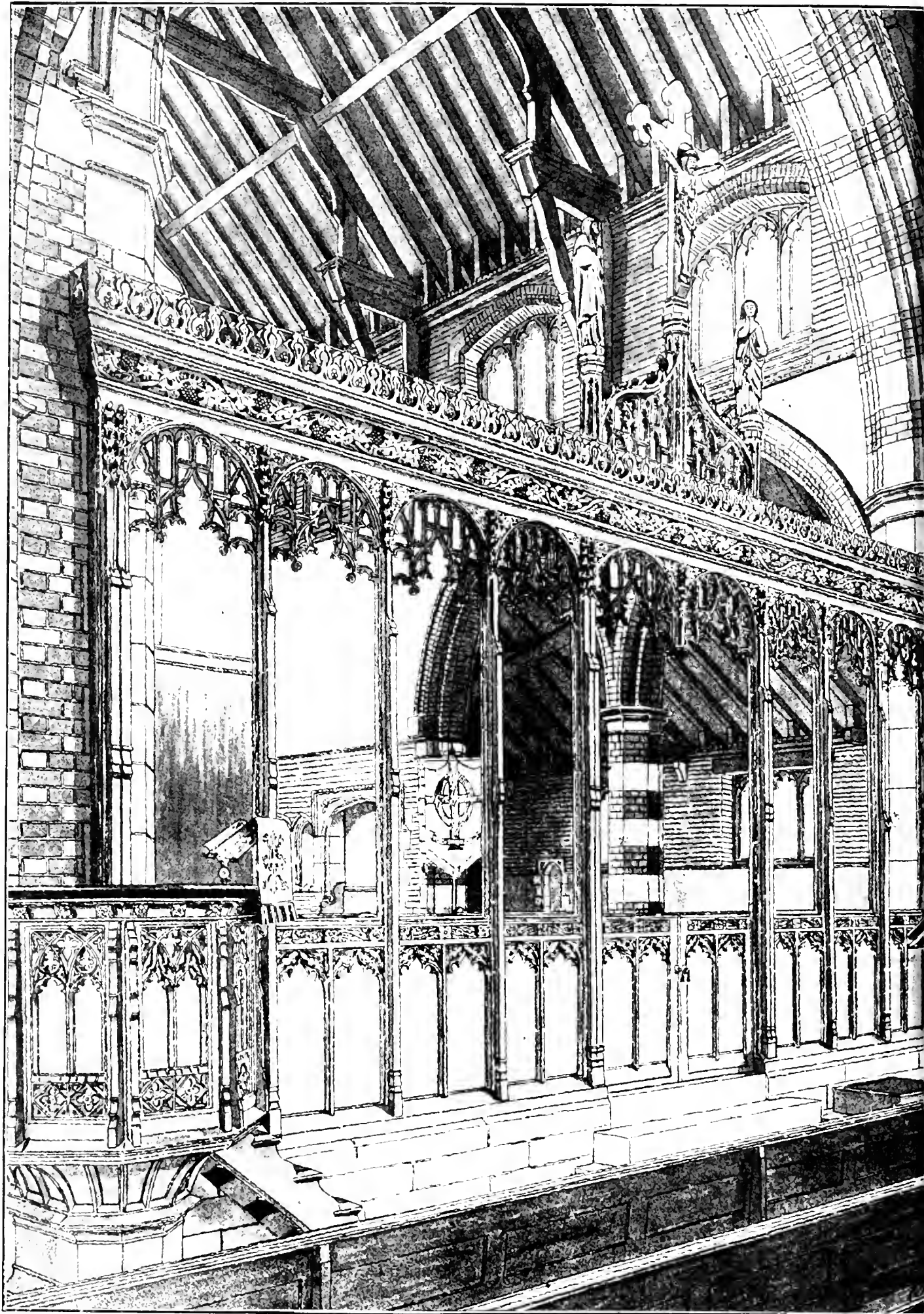
RESTORATION OF A TUDOR CENTRAL



ALL.—Mr. MURRAY ADAMS-ACTON, Architect.



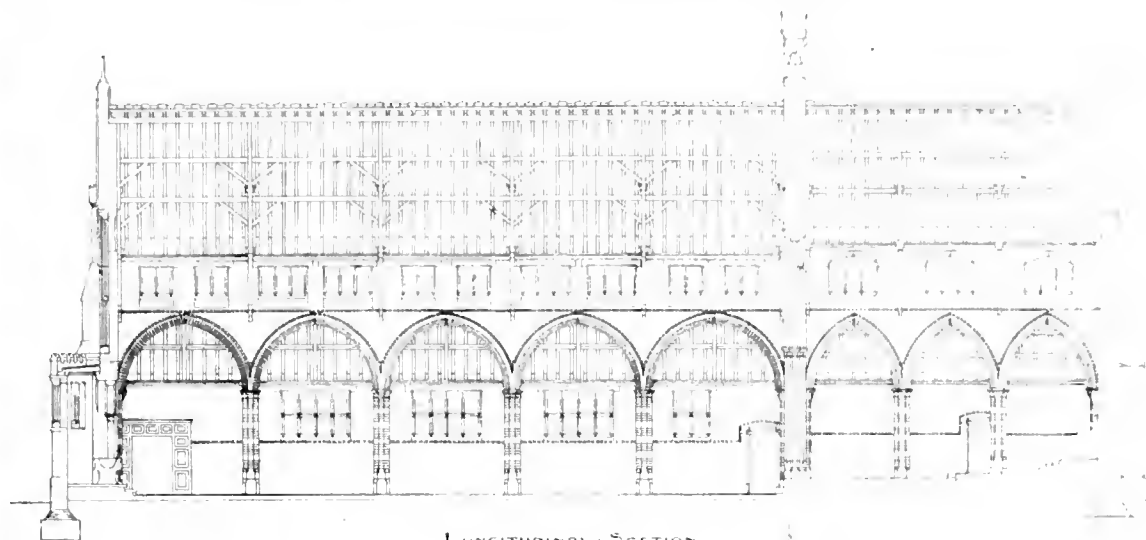




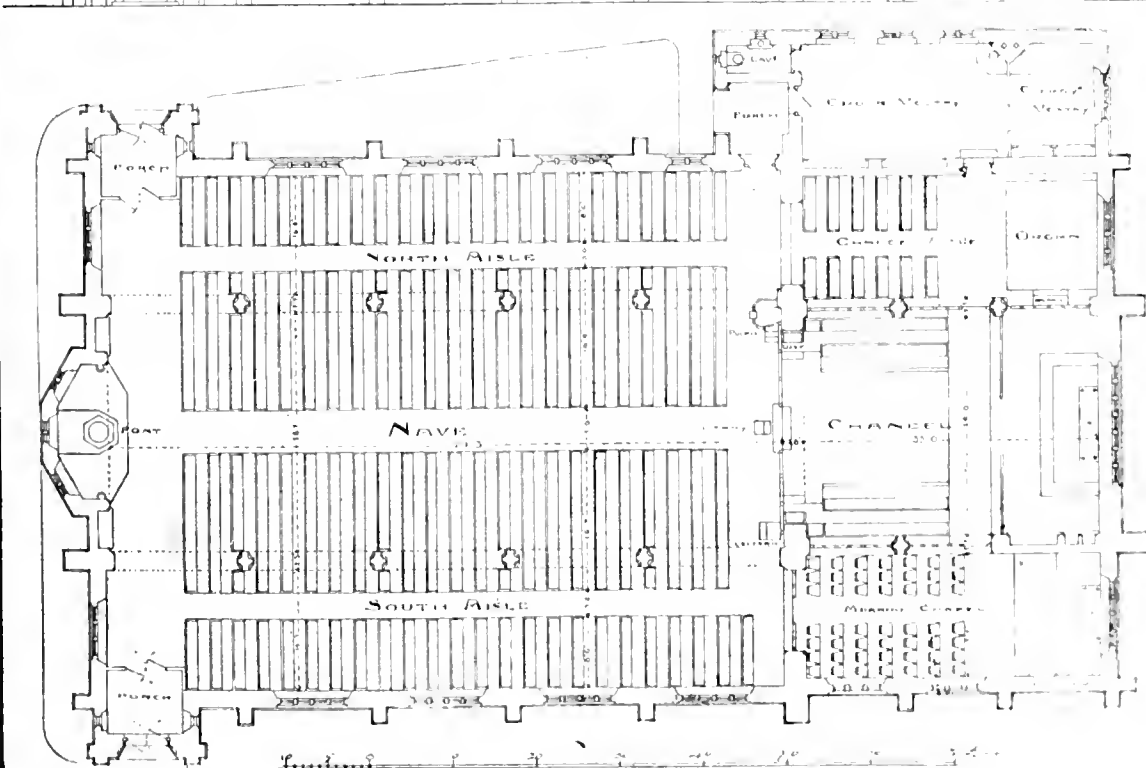
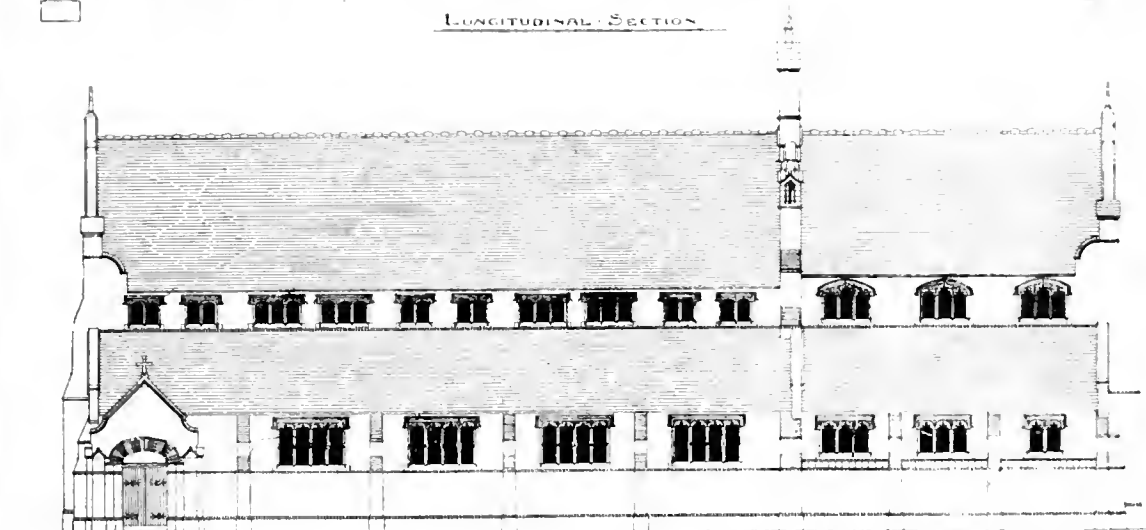
ROOD SCREEN AND GENERAL DRAWINGS OF ST. JOHN'S CHURCH



# S. JOHN'S CHURCH SEVEN KINGS

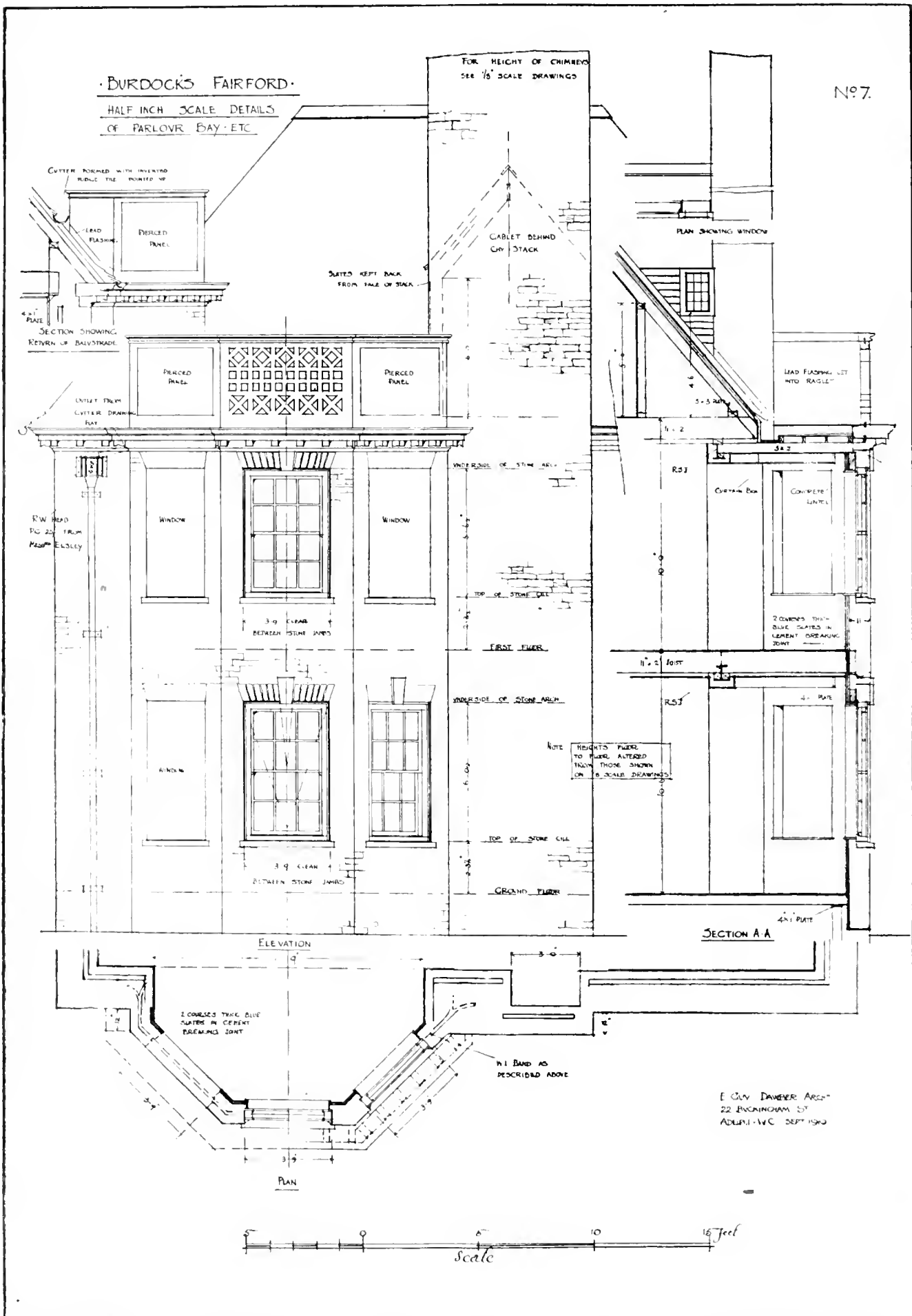


LONGITUDINAL SECTION



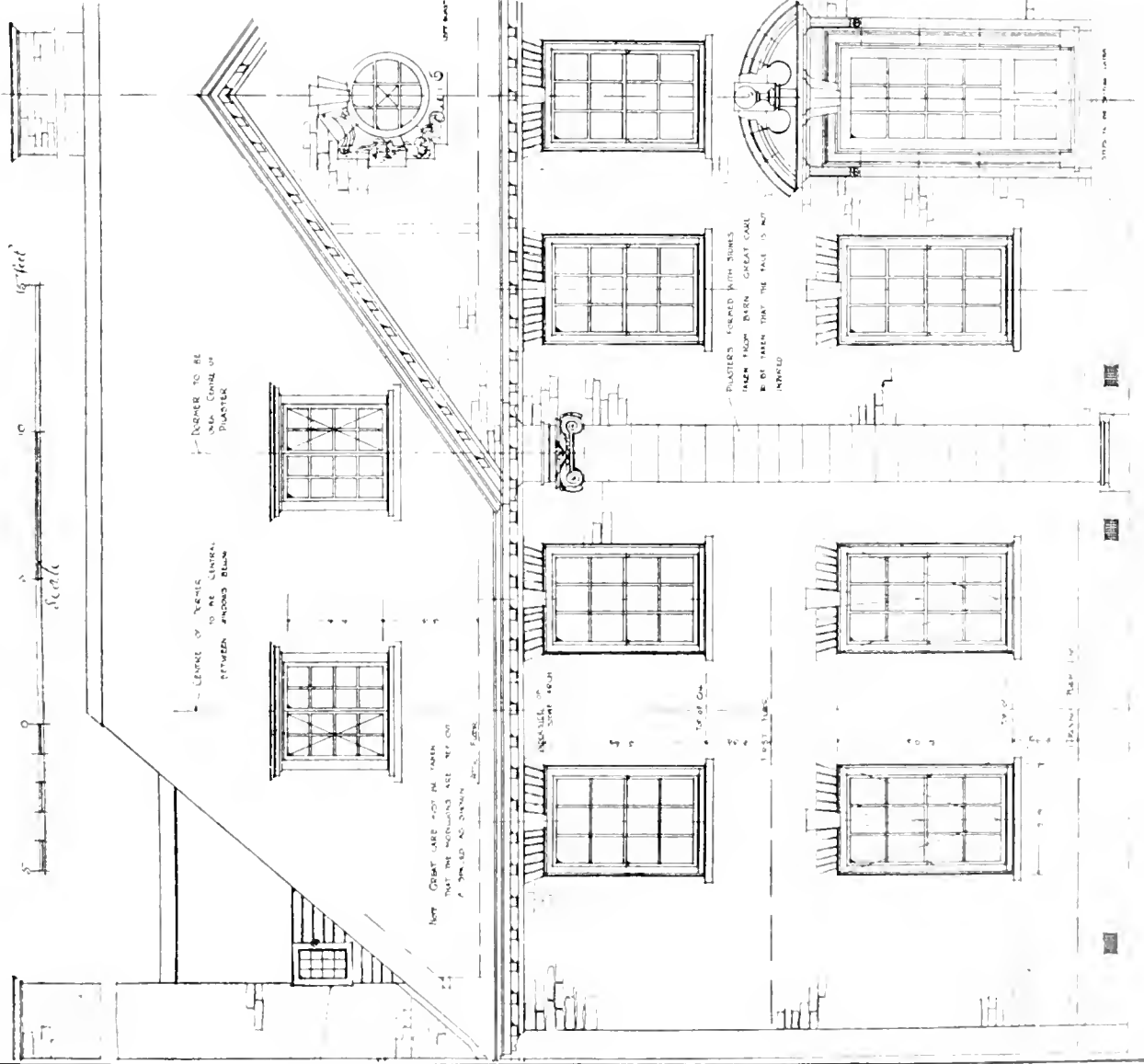






"BURDOCKS," FAIRFORD, GLOUCESTERSHIRE: DETAILS OF PARLOUR BAY.  
 Mr. E. GUY DAWBER, F.R.I.B.A., Architect.

BURDOCK'S FAIRFORD  
HALF INCH SCALE DETAILS OF ENTRANCE PORCH ETC







## Corrente Calama.

The Society of Architects is to be congratulated on the good maintenance of its membership, and the healthier condition of its finances than those of some less fortunate kindred institutions. That so few turned up at the annual general meeting last Thursday is, doubtless, partly the result of the war, but is it not also due, and also in the case of the other Societies, to some diminution of personal interest, consequent on the fewer opportunities afforded of friendly personal intercourse which brought us together in the older and more comfortable days of the R.I.B.A. and the A.A.? For more of that presently, and fewer reforms of any kind, one could wait a while, without fretting, till some good genius taught us, without losing any distinctive feature of either, how to weld all the London professional societies into one Federation, leaving each, as now, to develop its own characteristics to the common advantage, and all to cultivate the *esprit de corps* which is better born of mutual acquaintance than of the multiplication of offices and officials, and the triplication of Proceedings, which cost money that brings little return. A dream, perhaps; but some of us have learnt what good comradeship means, at the front and in camp, and will come back again presently, with a capacity for discipline and organisation of that best sort that is based on unity and economy of effort. May the rest of us disparage no good dispositions or inclinations thereto!

All limited joint-stock companies, we presume, like ourselves, have received a request from the Registrar for lists of any alien debenture or shareholders owning shares therein. We trust this is the prelude to action, which ought to have been taken long ago. Last Saturday Mr. Hughes, the Australian Prime Minister, who is leaving for England this month, speaking at a banquet organised by the Metal Exchange, said he had directed every company in Australia to get rid of all their German shareholders within three months, whether naturalised or not. We need hardly say we have none to get rid of. All German advertisers within our knowledge, moreover, were cleared out of these pages months ago. Architects and builders who still specify or use alien specialities are once again advised, if in doubt, to invest a shilling at Somerset House and inspect the annual returns, and if, in some cases, their suspicions are aroused by transfers to "English" holders to make further inquiries.

One of the most reputable of the Australian magazines, "Life," comments somewhat drastically on the conduct of affairs here in England, and remarks that if Noah's Ark had had to be built under the direction of a committee of twenty-two members it would have never been finished before the Deluge set in. That may be a matter of opinion, but it is unfortunately a matter of sad and serious fact that building here has been stopped, with direst injury to the whole nation, and that whatever our statesmen knew about the imminence of war, which found us so unprepared, they knew well enough the mischief they were playing with the second great industry of the realm. As the *Land Union Journal* points out: When, in the year 1909, upon the introduction by Mr. Lloyd George of his Budget Land Taxes, professional men, closely connected throughout their careers with house building and the management of property,

foretold disaster, they were warned that it was not a matter on which they had a right to express an opinion. They were told that this was a political and party question, and that professional men were stepping outside their province in protesting against the taxes. In spite of these warnings, societies composed of architects, surveyors, bankers, and builders did speak. In many cases they issued protests in the form of carefully argued pamphlets, setting out what they foresaw would be the inevitable effect of the taxes upon the well-being of the country. The widespread view amongst business men that the land taxes would prove disastrous to building enterprise was undoubtedly one of the influences which caused the House of Lords to throw out the measure; and thereby gave the country an opportunity to express its will in the matter. But the country would not listen to any criticism of the taxes. Partly owing to the great influence which Mr. Lloyd George at that time possessed over the people; partly owing to the skilful and unscrupulous manner in which the question of the land taxes was inextricably confused with that of the power and rights of the House of Lords; and partly owing to the extraordinary complexity and incomprehensibility of the Bill itself, which prevented any ordinary man from understanding what it really meant, the country accepted the measure, and belauded its author. The scheme of taxation was endorsed by the people, and the Government was returned to office with a direct mandate to put the Act on the Statute Book.

But this feeling on the part of the country in favour of a measure they did not fully understand, the ultimate effects of which they could not measure, did not absolve the politicians who were responsible for its introduction. Upon them rests a very heavy responsibility. They possessed the necessary knowledge to enable them to realise the misery they were going to inflict. It is impossible for them to say with any truth that they were not warned. They were warned over and over again by every person who had any intimate knowledge of the subject. They are therefore guilty of something more than a blunder. They deliberately sacrificed the fortunes, the happiness, the welfare of tens of thousands of human beings. It is indeed hard to exaggerate the injury that the measure has wrought to the country in the past five years. The full extent of this injury is only now coming home to the majority. It has, as our readers know, been an almost constant theme in these pages, contradicted as it has been by the political partisan hacks; but the realisation of the truth is now becoming more widely spread, and it will not be forgotten when the General Election comes.

A satisfactory instance of economical arbitration is worth record. Under the general conditions of contract for the erection of the Usher Hall, Edinburgh, all differences were to be referred to the amicable decision of an arbitrator. There has only been one arbitration necessary, and the final award in it has just been issued. The arbitrator was endowed with the fullest powers by all the parties to do whatever in his opinion was necessary thoroughly to ascertain all the facts. It was made a proviso that there was to be no clerk to the reference appointed, no formal evidence led, and no counsel employed. Building cases are not seldom so complicated that the proof occupies many days—one in England recently occupying thirty-seven—with the result that the expenses sometimes

much exceed the amount in dispute. It is mutually agreeing to the above conditions that the arbitration has been conducted according to the Statute, and the result is much less than would otherwise have been necessary if carried out either by agreement or by appeal to the Court of Session. The arbitration was between Messrs. N. McLeod and Sons, builders, the principal contractors for the whole work, and Messrs. Alex. Morrison and Son, plumbers, one of the sub-contractors, and the points in dispute embraced the alleged delay in connection with the completion of the building and the consequent loss through the advance in the cost of materials and labour, the method of measuring applied to the dome covering, and various other matters. The respective agents in the case were Messrs. Macpherson and Mackay, S.S.C., and Messrs. Hamilton, Kinnear, and Beaton, W.S. The referee was Mr. T. P. Marwick, architect, Fellow of the Institute of Arbitrators.

Mr. Andrew Elliot, 17, Prince's Street, Edinburgh, is selling here a small half-crown book, published in New York, by G. Arnold Shaw, containing a lecture on "The Need for Art in Life," by Mr. L. B. Stoughton Holborn, an American University extension lecturer. The author's contention is that the main cause of the social evils of to-day is a want of art appreciation, and that we shall never get true social reform till a national love of beauty has been brought about. His survey of the "three great art epochs in our Western civilisation—Greece, the Middle Ages, and the Renaissance"—leads him to the conclusion that whereas the secret of the success of Greece and the dominant position that she occupies in the history of past civilisation is due to her breadth of outlook and her all round grasp of life, both the Middle Ages and the Renaissance failed to see life clearly and see it whole, and suffered seriously in consequence. Our own age similarly suffers from this lack of comprehensiveness and due balance of parts, and therefore we miss the love of art and beauty, even in the meanest objects of life. About which, probably, there is little doubt. Whether the remedy "to turn to Greece and catch its inspiration . . . by realising the significance of a man that is whole and complete, a man that develops no side of his being in excess and that leaves nothing out" is possible, some, perhaps, may question. But the intention of the author is wholesome, and his booklet is worth reading.

The salary of Mr. C. Blaney, surveyor to the Newry Urban District Council, has been increased by £100 per annum.

A United Methodist mission church, seated for 300 persons, is to be built in the new mining village at Rossington. The colliery company have given a site in the centre of the village. Attached will be a schoolroom for 250 children.

The Council of the Royal Institute of British Architects have decided to remit the subscriptions and contributions due on January 1, 1916, of all Members and Licentates serving with the Forces who make a written application for such remission before July 1, 1916.

A Treasury return shows that up to March 31 last H.M. Commissioners of Works had spent £30,606 on the Woolwich housing scheme, out of £100,000 borrowed from the Consolidated Fund. The further amount may be issued under the authority of the Housing Act, 1914, is £1,900,000.

American manufacturers have evolved a process of making quartz glass, formerly made in Germany by a secret process, and large quantities are being exported. The sand from which the glass is made is found only in the State of Nebraska, and before the war thousands of tons of this sand were brought to New York and shipped regularly to the German factories.

## Our Illustrations.

NEW PREMISES, SINGAPORE, FOR MESSRS. WHITEAWAY, LAIDLAW AND CO., LTD.

These new premises, now rapidly approaching completion, occupy a commanding position on an island site in the heart of Singapore opposite the club and post office. The foundations have been taken down into the boulder clay, and a basement formed for storage of goods and packing, etc. The ground and first floors are to be utilised for the display and sale of merchandise, while the upper floors are to be available for high-class offices. A wide and lofty verandah is arranged all along the principal frontage on Battery Road, from which the entrances to the store are planned. A lift serves each floor of the store, while a separate staircase and lift give access to the offices on the upper floors. The building is a steel frame with reinforced concrete floors and staircases, the floor coverings in the store portion being of encaustic tiles. The whole of the windows on the first floor and above are metal casements—an innovation for

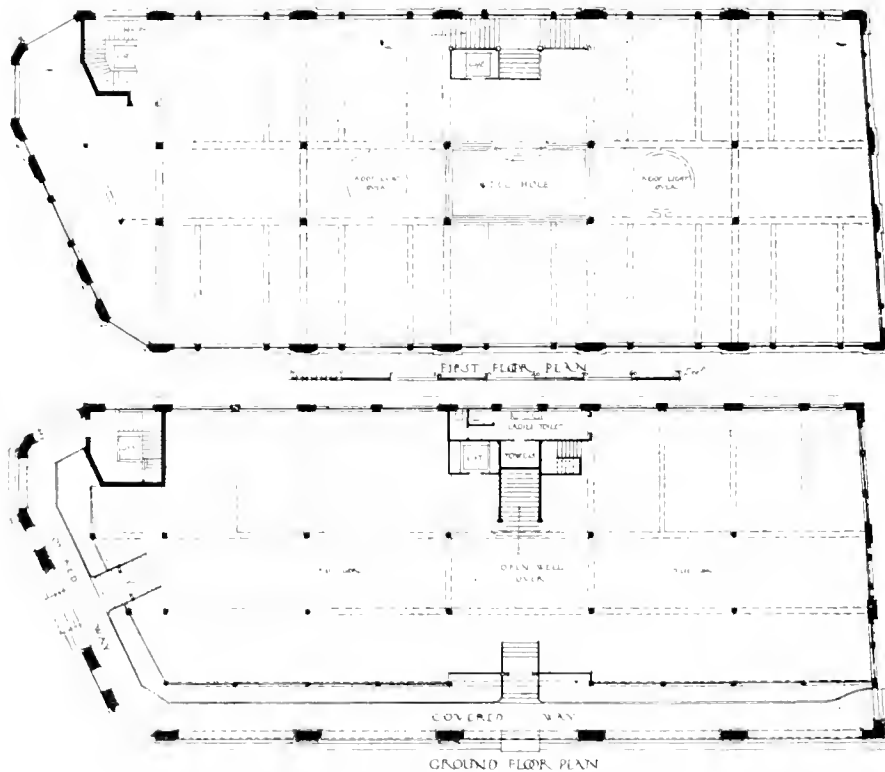
tells us that in execution the design had unhappily to be somewhat modified owing to considerations which need not be particularised here.

OAKEN SCREENS AND GENERAL DRAWINGS OF ST. JOHN'S CHURCH, SEVEN KINGS, ILFORD.

This church was completed last year by the addition of the north and south aisles and west porches. Side screens between north aisle and organ chamber and south aisle and morning chapel were also carried out at the same time. Since then the chancel screen has been completed and fixed. All this work of the screens, choir stalls, and pulpit, executed in oak, has been carried out by Mr. A. Robinson, of Broad Street, Bloomsbury, from the designs and details of Mr. Percy C. Boddy, of Messrs. Cutts, Davis and Boddy, architects, 14, Southampton Street, Strand, W.C. The drawing of the rood screen now reproduced was in the Royal Academy last summer.

DETAILS OF "BURDOCKS," FAIRFORD, GLOUCESTERSHIRE.

The general working drawings of this country house, erected from the designs of



PREMISES, SINGAPORE. MESSRS. H. O. ELLIS AND CLARKE, Architects.

Singapore, we are given to understand. The drainage and sanitary work throughout is quite in conformity with the best London practice. The building has been erected from the designs of Messrs. Herbert O. Ellis and Clarke, of 46, Fenchurch Street, and Mr. S. Tomlinson, M.Inst.C.E., of Singapore, has superintended the erection. The United Engineers, Limited, of Singapore, were entrusted with the erection of the steelwork, reinforced concrete floors, and electric lifts. All the constructional steelwork was supplied by Messrs. R. Moreland and Sons, the electric lifts by Messrs. Smith, Major, and Stevens, the shopfront by Messrs. Harris and Sheldon, the metal casements by the Crittall Manufacturing Co., the drainage goods by Burn Brothers, the sanitary fittings by Messrs. Davis, Bennett, and Co., the floor tiles by Messrs. Boote and Co., and the plate glass by Messrs. Chater and Son.

### RESTORATION OF A TUDOR CENTRAL HALL.

This work, on orthodox lines, shows a central hall with a minstrel's gallery, as illustrated by a water-colour drawing from this year's exhibition at the Royal Academy. The picture is self-explanatory, but the artist, Mr. Murray Adams-Auton, of St. John's Wood,

Mr. E. Guy Dawber, F.R.I.B.A., were published in *THE BUILDING NEWS* on December 29 last, with a few particulars and references. To-day we give two sheets of details from the contract plans. One shows the bay to the parlour and the other the front doorway and the garden entrance. The plans previously published will explain these enlarged drawings of the parts shown, and particularly the contrivance of the lobby and arrangement of the portal with the pediment over between the vases. The lobby inside is very prettily and ingeniously managed in a simple, clever way.

The contract for the second section of the new military equipment factory, Royal Oak Yard, Brompton, has been taken by Messrs. F. and H. F. Higgs, builders, Station Works, Hemo Hill.

The Artists' Rifles O.T.C. beat a Public Schools team in a Rugby football match at Queen's Club, West Kensington, last Wednesday, by one goal and four tries (17 points) to one try (three points).

The partnership hitherto subsisting between D. McA. Ross and F. Smith, builders, decorators, and contractors, at Tadworth and at Banstead, Surrey, under the style of Ross and Smith, has been dissolved.

## Correspondence.

THE LATE MR. HARRY HEMS.

To the Editor of *THE BUILDING NEWS*.

SIR,—I was very sorry to see in the Obituary column in your last issue an announcement of the death of one whom you very justly term "our genial and untiring correspondent, Mr. Harry Hems."

Some years ago, when I took part in one of Mr. Middleton's most pleasurable and instructive tours with the Society of Architects, I had the good fortune to meet Mr. Harry Hems, and his humour and good nature constantly enlivened the party.

I think it was in Courtrai or Tournai he was telling a few of us some of his humorous anecdotes, and one I think I can remember well enough to repeat was the following:—

It appeared that in Exeter he had at the time been worried a good deal by those officials who had to collect dog licenses, and he wrote to one of the local journals saying that, "after all their worrying, they had not charged him for his 'yard dog.'" This was, of course, followed up by a call from one of the officials, asking for the license fee; and "Harry" (as we called him), refusing to pay, was summoned, with the result that he said that some years back he had buried, in his yard, a favourite dog, whom they called the "yard dog," and, therefore, the officials could not claim a fee for a dog which had been long dead.

Another little incident occurs to me: A friend of mine and myself were out for a walk, after dinner, in one of the quiet Belgian towns visited in our tour, when we heard sounds of revelry, and, going to the little café from which the sounds proceeded, we heard the singing of "God Save the Queen." We entered the café, and, to our astonishment and delight, "Harry" was there in the midst of a lot of Belgians, and although he could not, I believe, speak either French or Flemish, he got those men to join with him heartily in that welcome National Anthem.

Many other little amusing incidents occurred during those tours, but I thought you would not mind inserting these little recollections of one for whom I entertained the kindest of feelings.

You mention in your obituary notice the work Mr. Hems did to the high altar screen at St. Albans Abbey for the then Mr. Hucks Gibbs, and you are aware that that screen was one over which Lord Grimthorpe (I think he was then Sir Edmund Beckett) had no control, much to his annoyance. It is related that when he saw what everyone else considered the beautiful figures in the altar screen referred to, he said: "Yes, a row of images." So they are, but a very beautiful row notwithstanding.—I am, sir, your obedient servant.

WM. WOODWARD, F.R.I.B.A.

13, Southampton Street, Strand, W.C.,  
January 13, 1916.

### SALE OF THE A.A. PREMISES—THE OLD METHODS AND NEW AIMS

SIR,—I chanced to attend the annual meeting last week when Mr. Austen Hall, the President, submitted his scheme, which had apparently become a *fait accompli* before it was presented for approval, and when Mr. Stanley Hamp proposed the adoption of the balance-sheet for the current year which, like the report of the Council, was taken as read. Both the statement of accounts and the president's letter to the members are extraordinary documents owing, perhaps, to an extraordinary time, and I do not propose to refer to them now further, but I take it that the *sui generis* of the remarks made by the majority of the speakers emphasised the generally accepted reason for the acknowledged failure of things at Tufton Street, said to be due to the inconvenient and unhappy arrangement of the premises; indeed, someone who addressed the meeting, and, judging from the voice, I fancy it was Mr. Cecil Brewer, said the awkward shape of the elongated (tunnel-like) meeting-room militated against results, and

stultified all enthusiasm, while the social side of the Architectural Association had never succeeded at Westminster, and could never prosper owing to the absence of suitable provision in the building. The speaker contrasted the life of this society in the vigour of old times in Conduit Street as compared with the state of affairs in Tufton Street, where no rows ever took place such as were enjoyed years ago in the library of the R.I.B.A. "My word, how we used to howl on the staircase!" Nothing, he urged, could prosper without an occasional row.

It may be admitted that when men wax enthusiastic they are apt to join issues and quarrel, but the less congenial the place of meeting, surely individuals attending are more likely to lose their tempers. Anyhow, this point is of comparatively minor importance. There are fundamental difficulties in the way of social success which have to be taken into account; consequently, I beg leave to point out that those who expected the A.A. to go on under the new curriculum and its scheme of professional teaching just in the same bon bourgeois manner common to the old days of self-help and mutual good-fellowship, expected too much, forgetting that the whole régime has changed. Nowadays, year by year, young men have joined for a restricted and specific purpose in order to go through a two-, three-, or four-year course of study, and to pass the examinations. This once accomplished there remains a triding sense of alma mater such as belongs to the cult in an old university. At the A.A. and other like schools the teachers are, for the greater part, birds of passage, taking up tuition as a stop-gap till their private practice matures sufficiently to justify a severance from the "dear boys" over whom so much fluttering has been observed, and whose fees have, meanwhile, provided the wherewithal. A certain amount of superficial esprit de corps naturally centres for a while round the schools, but, at best, that sort of thing is not only transitory, but essentially different from the old spirit which still induces men to go on subscribing as members of such a society as the A.A. for the sake of old times, when all that constituted good-fellowship for them has been outgrown by what has happened since. I suggest that the excuses enumerated by the president from the chair the other afternoon were not so bona fide as he appeared to think in accounting for the falling off of members now that the A.A. is conspicuously a mere teaching centre conducted like an educational machine for turning out a considerable procession of building architects. This falling away is precisely what must happen, whether the school is at the top of Regent Street or down behind the dignified shadow of Westminster Abbey. Of course, it might happen now and again that a strong, lovable, distinguished personality might change this for a while, if he were the head of affairs, but not otherwise.

The speaker to whom I have alluded was understood to say that he was on the council of the A.A. when the plans were passed which he now says have proved to be such a failure. I beg leave to think he is just as wide of the mark now as he must have been then, when the plans now condemned were adopted.—I am, yours, etc.,

NON LIBEL.

January 16, 1916.

The new school erected at Floors Street, Johnstone, by the Paisley Landward School Board, was opened for inspection on Friday. The new building, which is a single story in height, contains fifteen classrooms, and affords accommodation for 750 scholars, and is lit by electricity. The estimated cost is £7,000.

The Board of Education have made an order extending the time for the completion of the purchase of the Arbour Square site by the Stepney Borough Council for the erection of new municipal buildings for a period of eighteen months from December 7, 1915. The Mercers Company, the owners, had agreed to the extension of the time for completion to twelve months after the expiration of the war. For the proposed municipal buildings the plans of Messrs. W. Frazer Grainger and J. R. Leachart were selected in competition and illustrated in our issue of July 7, 1915.

## COMPETITIONS.

**CHORLEY, LANCS.**—The corporation of Chorley have adopted the plans and estimates submitted by Messrs. Woodhouse and Howard for public baths, and application will be made to the Local Government Board for sanction to borrow £10,000 for carrying out the work.

## PROFESSIONAL AND TRADE SOCIETIES.

**DUBLIN BUILDING TRADES EMPLOYERS' ASSOCIATION.**—The annual report of this association shows continued rapid progress, the membership being now 202 and embracing almost all employers of standing in the building trade of the city. 163 meetings of one kind or another have been held during the year. A monthly general meeting is held in order to keep the members fully in touch with the work of the association. Members are securing a much-needed reform by refusing to tender where no quantities are supplied. Schedules of day-work prices have been adopted in the builders, painters, plumbers, electricians, and brass and metal trade sections, and have already proved their utility.

**NOTTINGHAM AND DERBY ARCHITECTURAL SOCIETY.**—The second meeting of the winter session was held at 6.45 p.m. at the society's room on Tuesday, January 11. Mr. F. M. Royle, the hon. sec., informed those present that a Christmas greeting had been sent on behalf of the society to each of the twenty-six members on active service, to which the president and vice president had added a box of cigarettes. He had received very interesting replies thanking the members for their kind wishes. After the disposal of other business, the members adjourned to the lecture room, where the Rev. F. N. Heazell, M.A., F.R.G.S., delivered a lecture on "Baalbeck and Damascus," which he illustrated by a number of lantern slides, mostly prepared from photographs taken by himself. He stated that Baalbeck is reached from Aleppo by a railway journey of eleven hours. The chief object of interest is the ruins of the great Temple of the Sun. In the time of the Roman Emperors, Baalbeck was the central point of an Oriental form of worship which had existed from very early times. The ruins are entered by a modern flight of steps which lead to the propylæa, and this admits to the hexagonal forecourt by means of three gates. Through the western gateway of the forecourt is reached the Great Court, 450 ft. by 400 ft., surrounded on three sides by double rows of columns, while in the centre are the great altar of burnt offerings and the basin of lustration. On the fourth side of the court a great flight of steps led up to the front of the Temple of the Sun, a building 290 ft. long by 160 ft. wide, having a peristyle of 54 columns. Only six of these columns of a debased type of the Corinthian order and the bases only of many more now remain. A short distance from this temple stands the Temple of Bacchus, perhaps the finest building in anything like a fair state of preservation in Syria and Palestine. The main entrance doorway is beautifully carved, but nothing of the roof remains. These wonderful buildings were probably erected by Antoninus Pius between the years 150 and 160 A.D. The Emperor Theodosius built a Christian church within the Great Court in the fourth century, while another part of the buildings has been used for Moslem worship.—At the meeting on February 15, Mr. W. R. Cleave, A.R.I.B.A., will read a paper on "Quantities and Accounts."

Lieutenant Samuel Hall, Manchester Regiment, of Cleveleys Hydro, Cleveleys, Blackpool, architect, who was killed in Gallipoli on June 4, left personally amounting to £22,700.

Mr. Ernest John Lunn, head of a firm of timber merchants at Brockenhurst, died on Tuesday of last week, aged 56 years. He was a native of the town, and succeeded to the business of his grandfather and father.

The building committee of the corporation of Sunderland have passed plans for seven shops, with extensive billiard room accommodation, in Holmeside. The architects are Messrs. W. and T. R. Milburn, of Fawcett Street, Sunderland.

## Engineering Notes.

**LINCOLN.** Notwithstanding the fact that a new central railway station at Lincoln has been finished to contract time. It has cost £6,750,000 sterling. The main station is 985 ft. long, and covers an area of nearly four acres. It contains two halls, each covering an area of 5,500 sq. ft., in which the Prussian and Saxon departments are stalled. From each hall a flight of stairs 33 ft. broad leads up to the cross-platform. Between the two halls is a central building with a passage for the deposit of luggage. The platforms behind the building are covered over to a length of 790 ft. the area being about 16 acres. Between the halls and the central building a monumental arch of ferro-concrete has been erected above the cross-platform. The main station for passenger traffic and the adjoining goods station extend  $1\frac{1}{2}$  miles eastwards, 1.4 miles northwards, and 1 mile westwards. The railway system has an aggregate length of 93 miles.

**PORT OF LONDON IMPROVEMENTS.** In their annual report, the Port of London Authority state that "at no time in the history of the Port of London has so large an area of shed and warehouse accommodation been brought into use within one year." In the construction of the new deep-water dock adjacent to the Royal Albert Dock, most satisfactory headway has been made. The works completed in 1915 include the modernisation of the East India Import Dock, the widening of the entrance to the Western Dock (London Docks) to 60 ft., the addition of a shed with an area of 78,000 square ft., on the south side of Tilbury Dock, and two others with an aggregate area of over 85,000 square ft., and improvements and additions at the Victoria and Albert, West India Import, and South-West India Docks. At Millwall a shed with an area of 110,000 square ft. has been built, and at the Surrey Docks additional shed accommodation aggregating over 200,000 square ft. has been provided.

**ST. PAUL'S BRIDGE.**—The Corporation of London has applied to the Local Government Board for an Order under the Special Acts (Extension of Time) Act, 1915, for extending to August 18, 1917, the time allowed under the original Act for the compulsory purchase of the properties needed in connection with the construction of St. Paul's Bridge. This step has been taken owing to the abnormal conditions. The negotiations in connection with the proposed new bridge have been suspended, and the City is re-letting on tenancies terminable at short notice many of the properties already acquired.

## TRADE NOTES.

Under the direction of Messrs. Hyams and Hodgson, architects, Pangloss, Boyle's latest patent "air-pump" ventilator has been applied to Boller's New Café, Exeter.

Mr. R. Stephen Ashing, F.R.I.B.A., has removed his offices from 3, Dartmouth Street, Westminster, S.W., to Bedford House, 5, York Place, Baker Street, W. His new telephone number is Maxford 4522.

The value of waterproofed cement has to some time been recognised by most Government Departments. We hear that the Board of Public Works have been making extensions to the G.P.O., Dublin, and that the powder "Pulbo" has been used to make some of the cement work waterproof.

The new address of the Home Growth League Committee is No. 4, The Strand, Westminster.

At the last meeting of the town council of Birkenhead it was announced that Mr. John Williamson had received a bequest of £20,000 to the corporation, and that the life interest of his son had been placed in an art gallery.

The Ribery river park, near the town of Ribblesdale, has been purchased by the urban district council. The park is a fine grove has received the approval of the Local Government Board. The park is a fine grove has received the approval of the Local Government Board. The park is a fine grove has received the approval of the Local Government Board.

## Our Office Table.

Returns received by the Board of Trade from 91 principal urban districts in the United Kingdom (excluding London) giving the estimated cost of the buildings for which plans were passed during the third quarter of 1915 show that there was a decrease of 22.1 per cent. compared with the corresponding period in 1914. The population of the districts included is about 12 millions. There was a marked increase in the case of factories and workshops, the value of the buildings for which plans were passed being more than double that recorded in the corresponding quarters of 1914. All other classes of buildings showed a decrease, of which the most noticeable were churches, schools and public buildings (73.9 per cent.), and dwelling-houses (51.6 per cent.). Three districts showed an increase, viz., the Midlands, Lancashire and Cheshire; all the rest showed decreases.

Mr. F. W. Hasluck, librarian and assistant director of the British school at Athens, suggests as a possible subject for future students, especially architectural, of the Athens and Rome Schools, the important ruins at SS. Quaranta (Onchismos), on the mainland, north of the island of Corfu. In particular, the great ruined church of the Forty Saints deserves more attention than it has hitherto received. It is of very large dimensions (about 90 ft. 6 in. by 42 ft.) and externally rectangular in plan; the walls stand to the springs of the main vaults. The internal plan is, in all probability, unique, the aisles being replaced by three hemicycles on either side. There are traces of a baptistery adjoining the church on the north side, and there is said to be a large crypt. The church bears all the characteristics of Late Roman (rather than Byzantine) buildings, a fact which coincides with the date rendered probable by other considerations—the age of Justinian. Besides this church, the ruins at SS. Quaranta include a fort and small walled town, with churches and other buildings still standing within it, all being of about the same date as the great church.

At the last meeting of the town council of Newport, Mon., Mr. F. J. Robjant drew attention to the relations of the United Tube Corporation to the British Mannesmann Tube Company, who are constructing large works near the River Usk which will ultimately afford employment to about 5,000 men. The town council have entered into certain agreements with the Mannesmann Company for the construction of roads, sewers, and outfall works. Mr. Robjant alleged that the United Tube Company only came into existence a few months ago, and propose to work a patent which at present belongs to a German concern. He further asserted that the Mannesmann Company was 90 per cent. a German concern. On the other hand, the speaker said, the United Tube Company was entirely British, and was controlled by Englishmen, while the Mannesmann Company was controlled by the Government in the making of munitions. Councillor John Moxon, chairman of the special committee who are carrying on the negotiations, said it was lamentable, but none the less true, that these particular munitions could be turned out by a German patent. The patriotism of the United Tube Corporation was beyond question.

After six years' work, Montreal's revised building code is complete. The code is divided into two parts. The main part is the general building by-law governing construction throughout the city, and the other is composed of over a hundred special by-laws relating to buildings on certain streets or street sections. Every detail in the first part has been brought up to date, the endeavour being to ensure that local construction will be of the most modern and approved type. The special by-laws originally numbered over two hundred. With the revision of the general by-law the special measures were reduced to one hundred, and now have been compiled in such a manner that the rules applying to construction on every street or street section can be readily ascertained.

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Effingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

\* Drawings of selected competition designs important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc., we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

Telephone: Gerrard 1291.

Telegrams: "Timeserver, Strand, London."

## NOTICE.

Bound copies of Vol. CVIII. are now ready, and should be ordered early (price 12s. each, by post 12s. 10d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLVI., XLIX., LIII., LXI., LXII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXVIII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., XCVII., XCVIII., XCIX., C., CI., CII., CIII., CIV., CV., CVI., and CVII. may still be obtained at the same price; all the other bound volumes are out of print.

## BACK ISSUES.

Most of the back issues are to be had singly. All back issues over one month old will be charged 6d. each, postage 1d. Subscribers requiring back numbers should order at once, as they soon run out of print.

Handsome Cloth Cases for binding the BUILDING NEWS, price 2s., post free 2s. 5d., can be obtained from any Newsagent, or from the Publisher, Effingham House, 1, Arundel Street, Strand, W.C.

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The special rate to Canada is £1 3s. 10d., 5dols. 80c. for 12 months, and 11s. 10d. = 2dols. 90c. six months. Our Direct Subscription Agents for Canada are Messrs. Selts, Ltd., 302, Shaftesbury Buildings, McGill Street, Montreal, who will receive Subscriptions, £1 3s. 10d. per annum, on our account.

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Advertisements for the current week must reach the office not later than 5 p.m. on Tuesday. Front-

page advertisements and alterations or stop orders for serial advertisements must reach the office by first post on Monday to secure attention.

RECEIVED.—C. P. and Co.—A. W.—J. O. and Son, Ltd.—G. A. W. and Son.—R. W. C.—B. and Son.—S. W. F. and Co., Ltd.—M. B. and D., Ltd.—Sir W. H. B. and Co., Ltd.—P. B. and P.—B. J. and B.—R. J. and Co.—T. P. Co., Ltd.—D. J. M.—T. A.—J. K. and Son, Ltd.—M. and C.—W. S.—A. D. D. and Co.

PAID.—No.

F.R.I.B.A. Please send.

Z.—We do not think the claim can be sustained.

LAMDA.—The contract is very badly drawn, and we really hesitate to offer an opinion. 2. Yes.

PUBLISHED.—We have given the only answer in our power in our other paper, the *English Mechanic*, to which you have also sent it.

BRIDGER.—Portland cement that has become inert is not, in our opinion, likely to be benefited by any such mixture as you propose. It is often said there should be no free lime present in Portland cement, or the cement will "blow," but it is very improbable that ordinary free lime is ever found in modern Portland cement.

## TO ARMS!

4th BATTALION CENTRAL LONDON VOLUNTEER REGIMENT.

Orders for the week, by Sub-Commandant C. Stanley Peach (Acting-Commandant).

OFFICER FOR THE WEEK.—Platoon Commander W. J. A. Watkins.

NEXT FOR DUTY.—Platoon Commander P. A. Bick.

Platoon Commander W. J. A. Watkins has passed the Examination in Officers' Training Class A, arranged by the Central Association Volunteer Training Corps.

GENERAL PARADE.—Saturday, 20th inst., at Chester House, 2.45 p.m., for drill in Battersea Park.

SCHOOL OF ARMS.—Tuesdays, 6 to 7 p.m.

LECTURE.—Thursday, 20th inst., at Chester House, 5.45 to 6.45 p.m.

DRILLS AND PARADES.—For details of all Drills and Parades see Notice Board at Headquarters.

ENTRENCHING PARADE.—Sunday next, the 23rd inst. Entrenching Officer on duty, Platoon Commander C. H. C. Bond, Victoria Station (L.B. and S.C. Rly.), indicator board, 8.35 a.m. sharp, for special train, 8.50 a.m. Uniform, haversacks, and water-bottles. Midday rations to be carried. Return to town about 6.15 p.m. Railway vouchers will be provided.—By order.

MACLEOD YEARSLEY, Adjutant.

CORRESPONDENCE.—All correspondence should be addressed to the Orderly Room.

DRILL HEADQUARTERS AND ORDERLY ROOM.—Chester House, Eccleston Place, S.W.

January 19, 1916.

## MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY (To-day).—Royal Society of Arts. "The Common Lands of London: the Story of their Preservation," by Lawrence Chubb, 4.30 p.m.

THURSDAY (To-morrow).—Architectural Association of Ireland. "Belgium," by H. Alberry, A.R.I.B.A., 15, South Frederick Lane, Dublin, 8 p.m.

MONDAY (Jan. 24).—Surveyors' Institution. "Practice in Assessing Dilapidations," by C. F. Slater, 5 p.m.

TUESDAY (Jan. 25).—Institution of Civil Engineers. Discussion on Mr. F. W. Carter's paper on "The Electric Locomotive," 5.30 p.m.

WEDNESDAY (Jan. 26).—National Federation of Building Trade Employers. Annual Meeting at Kohn-Eor House, Kingsway, 10.30 a.m.

Royal Society of Arts. "The Effect of the War on Cotton Growing in the British Empire," by J. A. Hutton, 4.30 p.m.

FRIDAY (Jan. 28).—Glasgow Architectural Craftsmen's Society. "The Construction of a Factory in London," by C. Ernest Munro, A.R.I.B.A., 7.45 p.m.

At the last meeting of the Aberdeen Harbour Commissioners, Mr. William Panton, who, on account of ill-health, has resigned the office of superintendent of works, was granted a retiring allowance of £105 per annum. It was also agreed, on the recommendation of the works committee, that a readjustment of duties should be made as between the inspector of dredging and the superintendent of works, under which Mr. John King, in addition to his present duties as inspector of dredging, is to have charge of the harbour workshops, with the designation of marine superintendent; and Mr. Alexander G. Souter, who has acted as assistant to Mr. Panton for the past eleven years, is to be superintendent of works. Mr. King's salary is increased from £220 to £230 per annum, with house free of rent and taxes, and Mr. Souter's salary is increased from £200 to £240 per annum.

# THE BUILDING NEWS

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### OUR ILLUSTRATIONS.

Gothic Architecture. By Sir Thomas Graham Jackson, Bart., R.A., F.S.A. Wells Cathedral, view from cloister; Maison Cupas, Bourgas; Assisi; and the choir, Siena Cathedral.

### Strand, W.C.

Church of St. James the Greater, Leicester West porch, detail of entrance, general plan, and new font. Messrs. Goddard and Catlow, F.F.R.I.B.A., Architects.

New Premises, Regent Street, W., in continuation of the rebuilding of Oxford Circus, and including New Branch Bank of the Union of London and Smiths Bank. Architect of the facade, Mr. Henry Tanner, F.R.I.B.A. Architect supervising the work, Messrs. Stephens and Hunt. Architects to the Bank, Messrs. Dunn, Watson, and Curtis Green.

A Countryside House, near Reigate, Surrey. Views of exterior, the dining-room, and plans. Mr. Charles E. Salmon, M.S.A., Architect.

### SIR THOMAS G. JACKSON ON GOTHIC ARCHITECTURE.

The two volumes by Sir Thomas G. Jackson, just published by the Cambridge University Press at £2 12s. 6d., are in every way a worthy continuation of the author's book on the Byzantine and Romanesque styles which appeared nearly two years since, and a review of which was given in our issue of January 24, 1913. Taken together, the two works certainly form the most lucid contribution to their subject that we have had for many years. From them, in a greater degree than from any other of recent date, the student will gather a consistent idea of Mediæval architecture from its rise, after the decay of Roman art, to its final stages in the sixteenth century, and the more readily and profitably because his consciousness of the reasonableness with which facts are presented and conclusions indicated will be stimulated throughout by his appreciation of the labour—of love always—which during half a century has been devoted to his task by one whose activities in so many directions have so well nurtured and preserved the vigour of body and ripe judgment which all who know him hope may prove as fruitful as in the past for many more years. We should add that special interest attaches just now to the description and illustrations of Rheims and the other buildings which have suffered during the war, and will do so in a still greater degree in the years to come, when posterity will treasure memorials like these of the achievements of past art destroyed by German vandalism.

Profusely as the two volumes are illustrated—there are no less than 191 plates and 229 cuts—there is not one that could be spared. The work is no mere catalogue or guide book, but a consistent scheme, which, properly understood, the student may complete from his own observation; description and illustration, therefore, are confined to typical buildings or parts of buildings, and almost entirely to such as the author himself has studied, or with which he has been professionally connected. There is no second-hand work in the book. We may regret that we find nothing about Spanish Gothic, but Sir Thomas Jackson has never been in Spain, and is therefore disinclined to add anything to what Street and others have told us. Similarly we get nothing about Germany and the Low Countries, as the war has prevented the revision of notes taken many years ago. As far as Germany is concerned, we miss little, perhaps, for

the Germans have done little in art, as a creative race, and their Gothic, borrowed late from France, is mostly exaggeration of the weak points of French Gothic. The Italians erred, of course, in supposing that Gothic architecture originated in Germany; but it is true, nevertheless, that Gothic is mainly a Teutonic art, difficult as it is to define it more exactly, or to say precisely when it began or when it ended. We find its roots in buildings of the Romanesque period, and it melts at last imperceptibly into Neo-Classicism. As Sir Thomas Jackson well asks, "Is the Castle Hall at Oakham, with its round arches and pointed windows, to be classed as Romanesque, or with Gothic; and can the Elizabethan and Jacobean buildings at Oxford be reckoned as anything else but Gothic, in spite of their Corinthian and Ionic shafts and capitals, or the five orders of Bodley's tower in the Old Schools at Oxford?" Moreover, Gothic is not necessarily a Pointed style, nor is vaulting an essential feature of it, and any who may question either statement will do well to answer the questions Sir Thomas Jackson puts to those who would exclude buildings in which either or both characteristics are lacking. Much less, of course, are quatrifolios and trifolios, cusps and traceries, crockets and finials, pinnacles and flying buttresses, Gothic architecture, except in so far that they are accidents of the style, resulting naturally from the application of certain principles behind them.

What, then, is, or was, Gothic art? Not a definite style, bound by certain formulas, but rather the expression of a temper, sentiment, and spirit which during the Middle Ages inspired the outward expression of the three general principles common to every good style of architecture—the world has known—solidity, economy, and æsthetic expression of the construction. "In plain language," as Sir Thomas Jackson puts it, "all good styles must be strong, they must be sensible, and their work must show that they are so." The difference between one true and living style and another does not arise from any difference in principle, but from difference of circumstance to which those principles are applied. One more characteristic Gothic has. It is the style of freedom from convention and of individuality. Based on natural law, not on natural form, from its freedom results its exuberant variety. Roman architecture, with its stereotyped patterns of temple, theatre, or basilica, carried with the spread of empire from Rome to Syria, Africa, Gaul, and Britain, reflects the centralisation of the Empire and the immobility of its institutions, and the

society that lived under them. Gothic art was the fruit of the restless temper of the modern world, and its passion for progress and eagerness to try new ideas and novel methods. It took nearly eight centuries to develop Romanesque from its Roman origin down to the beginning of Gothic. In less than half that time Gothic architecture ran through all its phases. "Surely," as Sir Thomas Jackson exclaims, "there has never been another such astounding instance of artistic growth in the world's history." And the impetus all through these wonderful 350 years was the same—rational motive free from the restraint of conventional rule and precedent:—

The Gothic artist followed unhesitatingly the lead of every novel requirement, waiting for no authority but that of common sense and economy, and gladly welcoming every constructional problem in turn as affording the most fertile suggestion for artistic expression. The same spirit may be traced in all he did; in humble village church as in mighty minster, in lonely manor-house as in lordly palace, in timber construction no less than in masonry. Gothic art is the flower of the freedom-loving Teutonic intelligence, the outcome of natural, unforced application of means to an end; and the shape it took was the natural, perhaps the inevitable, result of the conditions of time, place, and people amid which it arose.

That broad, general statement Sir Thomas Jackson justifies, we think, up to the hilt in his next chapter—a very able one, on "The Gothic Vault," in which he traces the economical conditions of post-Roman Europe which gave direction to the art of the Middle Ages. The only models of the Romanesque architect were Roman buildings. He had to reproduce, with small stones and rude appliances, the best he could of the work of the masters of the world. Vaults were beyond his skill, hence came the subordination of the orders; so instead of the large voussours of the Roman architect, he learned to build the arch with little stones in two or three successive rings, and still further to economise by recessing each ring within that outside it. Pleased with the concentric shadows cast by his receding rings or orders, he set to work to decorate them by rounding the square edges of the stones, and thus led the way to the richly decorated moulds and sculptured portals of the Middle Ages. Soon the Romanesque architect felt that his wooden roofs were perishable and dangerous, and that he must have a stone vault. First he vaulted the aisles, and later, down to the latter half of the twelfth century, as at Ailes, Clermont-Ferrand, St. Julien, St. Nicolas, Autun, and in other places, he turned barrel vaults over the nave, but the inconveniences felt induced him to resort to the cross vault of the Romans, which allowed large, high, clerestory windows,



and concentrated the thrust on the isolated points that could be fortified by buttresses. One result of this was the articulation of churches—an important element of Gothic architecture, but not a novel one, for the Romans had invented and used it, as in the Basilica of Maxentius in the Roman Forum. How difficulties led the way to the apprehension of nearly all the elementary principles of Gothic architecture Sir Thomas Jackson lucidly illustrates in his anatomical account of the Romanesque church of St. Ambrogio at Milan, and in his next chapter traces the whole evolution of the Gothic vault down to the period when the last traces of Roman tradition disappear, and we find the differentiation of the new style from all that had preceded it in the four particular principles:—Concentration of thrusts and supports and articulation of the structure more fully developed than in Roman work; subordination of orders; freedom of arched construction by the introduction of the pointed arch and the system of rib and panel vaulting; and correspondence between the load and its supports logically expressed.

In his fourth chapter Sir Thomas Jackson prefaces his account of the transition from Romanesque to Gothic, which began in France, by a masterly epitome of the character of the thirteenth century, at once doubtless, as Gibbon calls it, the age of "the most signal triumph over sense and humanity, the establishment of transubstantiation and the origin of the Inquisition," but also as assuredly the age of the growth of more liberal opinions and of civil liberty. The communal movement throughout Europe was, of course, hated by the clergy, especially by the regulars, between whom, however, and the secular clergy there had already been antagonism. The abbey had become great feudal establishments with enormous revenues. Hence the early inferiority of cathedrals to abbeys. The bishops—who doubtless had no particular love for democratic institutions—saw in the rise of the communes a blow to the monks; and, besides, the citizens soon became eager to demolish their old cathedrals and to build nobler structures, the architects of which were laymen, whereas in the early Romanesque period they had been monks. How the movement progressed is made clear by illustrations of the abbey church of St. Denis and the cathedrals of Sens, Soissons, and Noyon, and one or two churches of coeval date.

In the cathedral of Notre Dame, Paris, begun in 1163, and very fully illustrated and described in the fifth chapter, we find the transition complete, and Romanesque tradition finally put aside. Comparing the work at Paris of this period with that being done in the provinces, all must have been struck with the great advance made in the architecture of the Royal domain. At Autun and Vézelay, in Auvergne, at Périgueux, Arles, and St. Gilles, the Romanesque was still prevalent, but the conception of the Gothic had been firmly grasped by the architect of Notre Dame, and it was only left to his successors to develop it further. How their development followed is ably traced with abundant illustrations to the period of its fullest manifestation in the Royal domain, of which the typical instances are Amiens and Beauvais. In two following chapters the somewhat different developments in Normandy, Burgundy, Toulouse, and Anjou are examined, and the reasons therefore explained, and a chapter on the later French Geometrical Gothic—which many of us will agree with Sir Thomas Jackson is "monotonous"—follows.

In the second volume of his "Byzantine and Romanesque Architecture" Sir Thomas Jackson traced the progress of English Romanesque from the Conquest to 1170 or 1180. In Chapters XIII. and XIV. of the present work he deals with the Transition and Early English periods, with many illustrations, one of which, the view from the cloister at Wells, we reproduce, which may interest those who followed the description which Mr. Maurice B. Adams contributed to our New Year's number. The final chapters of Vol. I. include a comparison of the Early Pointed architecture of France and England, one of the best, though brief, and an interesting note on "The Mediæval Architect." About the "piety and devotional fervour, now unknown," of the mediæval art workers Sir Thomas Jackson shares the doubts of a good many of the rest of us. They were doubtless much like ourselves and shared the superstitions of their time, or the incredulity of the less superstitious. It is noteworthy, as is remarked, that during the Romanesque period, when monkish hands and brains were employed, diabolic interruptions and interpositions of saints and angels were common, but we hear little more of them when the art passed into the hands of laymen. Certainly there seems to have been scamping and bad building, as at present, and most of us know the very bad instances referred to. But if the men of the Middle Ages, like ourselves, had their shortcomings, unlike most of us they had "a lively and free temperament, which made it easy for them to do things beautifully because they did them unconsciously." Unfortunately there is little such work done now!

The second volume opens with an able analysis of the constructional system of the Gothic window. Its development, doubtless, began, as is suggested, with the gradual grouping of independent lights, at first distinct, then drawn together, next united under an arch on the inside, then recessed within the interior arch till the divisions became piers of wrought stone, clumsy at first, but afterwards of more slender proportions. Next came the piercing of the solid shield in the head by independent figures, and the invention of plate tracery. Gradually the shield was got rid of altogether, and the invention of bar tracery followed, the stone being shaped round the piercings on both edges, back as well as front. How the idea became modified is seen later on in the styles of the fourteenth and fifteenth centuries.

Chapter XVIII. passes from the Early English to the Geometrical Decorated style, Westminster Abbey Chapter House, of course, being taken as the finest example. Others illustrated are the octagonal Chapter House at Salisbury, the Presbytery at Lincoln, Exeter Cathedral, and Lincoln. Chapter XIX, which deals with the English Decorated style, naturally includes a brief notice of some of our famous spires, one especial glory thereof. Two chapters are devoted to Perpendicular, the style peculiar to this country, with the exception of the church of Notre Dame at Caen, which was built during the English occupation of that city. It has been the fashion to call Perpendicular "debased Gothic," but we entirely endorse Sir Thomas Jackson's protest, and agree with him that to condemn as a decadent art the style which has given us the glorious towers of Gloucester, Canterbury, Boston, Malvern, and Magdalen College, Oxford, those that cluster round the Mendips or stud the vales of Somerset, the splendid churches of the Fen country, the chapels of

Windsor, that of Henry VII. at Westminster, and of King's College at Cambridge, is "mere pedantry." Certainly no style exhibits a more complete mastery of technique, and in none is the woodwork and painted glass better. We believe, too, as Sir Thomas Jackson does, that the various causes of the advent of Perpendicular assigned by some writers are entirely apocryphal, and that it was "no more due to the French wars or the Black Death than the Reformation in Germany to the accident of Luther's picking up a Bible at Erfurt, or that in England to Henry's desire for a change of wives." The style was the last manifestation of the restlessness of Gothic, which was constantly changing with the changes of the modern European world. The decline of monasticism had set in; the hold of the Church on the people had grown less as her wealth grew greater; bishops themselves began to dissuade would-be monastic house-founders, and to favour collegiate education for the secular clergy; no more cathedrals or conventual churches were built, but the parish churches assumed dimensions unknown before. The new style, therefore, was a secular style, with none of the mystery and symbolism of its predecessors, and with no hieratic pretensions. It took the form it did "from the feeling that the Decorated style had lasted long enough; and that, just as at the end of the Romanesque period, and again at that of the Early English style, it was time to move on." Gothic sentiment has never died out in England. It affected all that was done in the earlier days of the Renaissance, "Wren's plan of St. Paul's is a Gothic plan forced on him by national sentiment, and the beautiful towers and spires with which he and his successors have embellished London are really more Gothic than Classic, and are as alien to Vitruvian rule as Westminster Abbey itself."

The expiry of French Gothic in the middle of the sixteenth century, after its blaze out in the Flamboyant style, was probably due, as Sir Thomas Jackson suggests in Chapter XXII., to the different French temperament. Here the progress of the styles had been steady, regular, and continuous—like our revolutions. In France the Geometrical style of the thirteenth century endured with little change throughout the fourteenth century, except that, like the *ancien régime*, it had outstayed its time, and become flat, stale, and monotonous. Therefore, when the change came it was sudden and violent. Nevertheless, the joyous fancy of the Flamboyant style palliates its extravagances and its meretriciousness, and compels the admission that it brought new life to a worn-out art that had nothing to offer to the world but stale repetitions. In France, as here, it was, of course, at this time that civil and domestic buildings began to play an important part in the architecture of the day. Of some of the best of these illustrations are given, one of which we reproduce, the house of the lawyer Cujas, at Bourges, turned at one time into a gendarmerie, and now into a museum, a typical example of the residence of a well-to-do citizen in the fifteenth century.

In Italy, in spite of the decline of art in the seventh and eighth centuries, Classic clung tenaciously to its native soil, and the architecture of the Middle Ages never took there the fresh departure which resulted in the Gothic of England and France, and, afterwards, of Germany. Gothic slowly filtered through from beyond the Alps, rather, it would seem, from France than from Germany, for although the Italian always spoke of



Gothic as *le stile Tedesco*—the German style—the influence of France, as Sir Thomas Jackson points out in Chapter XXIV., is more apparent than that of any other country. Not a few other causes contributed to the different expression of the style, which are made clear in Chapters XXV. to XXX., and these—especially the two chapters dealing with Sicilian architecture—are extremely interesting, and include many good illustrations. We give two, Assisi and the choir of Siena Cathedral.

Chapter XXXI., in which Sir Thomas Jackson embodies his conclusions, is so logical that we regret we cannot transfer it bodily to our pages. His first postulate really covers the whole ground. Undoubtedly, as he contends, the practical artist must not only admire the art on which his own practice is based, but must make sure that he understands it, and the more so because no genius, however great, can effect much in the face of an unintelligent society. That the Gothic of the past should ever live again exactly in its old forms is impossible: no dead art ever did or ever will do so. And yet undoubtedly, as he says:—

It will be admitted, even by those who deplore it, that the revival of Gothic was the great artistic event of the nineteenth century. In painting the Pre-Raphaelites made the stale conventions of the day ridiculous, and revived the art by bringing back into it sincere conviction, real purpose, and a love for truth. In architecture the neo-Goth broke the chain of Classic tradition and showed the way to freedom, though at first only dimly; for, brought up as he had been in the worship of the five orders, his first idea was that Gothic had its rules and formulas like Classic. An attempt was even made to reduce it to five orders of its own. This was to practise Gothic in the Classic way, and so far as the style has been practised in this manner down to our own time it was foredoomed to fail, and has, in fact, been a failure. And yet it is not too much to say that, whatever is good in modern art, either in architecture, painting, or sculpture, has been the outcome of our return to our native style, so far as we have properly understood it.

What, then, is the lesson for us all? Surely if we recognise, as we must, that "our whole habit of life, our knowledge of Nature, and our attitude towards her are as alien from the mind of the Middle Ages as the cart-cult of St. Denis and Chartres from our modern views of religion, or the lessons of the *Glossa ordinaria* from the higher criticism of modern theology," the old Gothic spirit must inspire us—"the sons of the men . . . always striving to be in the van of progress, discontented with our victories as soon as won, and ever reaching onward to the next step forward:—

Let our architects, fully stored with knowledge of the past, but regarding the bygone art as their tutor rather than their model, bend themselves resolutely to the problems of the day, to novel modes of construction, to the use of novel materials, to new habits of life and new social needs, and let them satisfy these in the most direct and common-sense way, regardless of precedent and authority, and they will be working in the true Gothic spirit. If a man has the divine fire of Art within him, and works on these principles, the details will come of themselves, and it cannot be but that what he does will have all the qualities of good and true Art.

In a brief but practical Appendix Sir Thomas Jackson, dealing with ferro-concrete building, aptly asks what suggestions likely to aid us in designing, bearing in mind the injunctions just quoted, do we find in ferro-concrete construction? It certainly violates the canon that the design must express the construction and be suggested by it. If it does not do so, it is bad art. The iron skeleton, however, must be hidden, for the least contact with damp—even of damp air—is its ruin. And yet, for the present, at all events,

ferro-concrete seems to have come to stay. It is, as Norman Shaw once said, "either the beginning or the end of architecture." Sir Thomas Jackson says:—

A few suggestions occur to me. In the first place, this is a tridectated style, and there is no further use for the arch. The skeleton is a mere scaffolding of posts and rails, therefore the rectangle should be the ruling figure, and not the curve. In the next place, if we are to have this construction, let us take full advantage of its possibilities, and do things in the way of open spaces that would be impossible in the old way of building. In this way the iron would assert its presence, and the eye, growing used to these new feats of building, might perhaps learn to take for granted the iron skeleton inside the apparent casing, as one takes for granted the skeleton inside the human body. However this may be, let us away with all features proper to the older styles, and, for the present, be content with plain, bald, undesigned effects arising purely from constructional necessities. Something good may come of it, though the prospect does not seem very hopeful.

It does not! There is, of course, the great question of the permanency of these structures, and except for roof trusses and fireproof floors in conjunction with concrete, the architect who builds for futurity will keep iron out of his buildings as much as he can. There is no need for it in private houses or churches, and, as Sir Thomas Jackson says, "architecture may survive there till perhaps it comes by its own again."

#### THE LONDON COUNTY COUNCIL.

The fortnightly meetings of the London County Council were resumed yesterday (Tuesday) afternoon. The recently authorised banner of arms was displayed for the first time, and it was decided that it shall be hung in the County Hall during sittings of the Council.

The Education Committee reported that with reference to the decoration of certain Council schools they had conferred with the undermentioned artists representing the Professional Classes War Relief Council:—Messrs. W. R. Colton, A.R.A.; John Hassall, R.I.; M. Spielmann, and Sir Aston Webb, K.C.V.O., C.B., R.A. Eight schools, situated in poor districts, were selected by the committee, and the representatives of the War Relief Council, after visiting several of the schools with a view to deciding which, in their opinion, would be best suited for their purpose, recommended the first floor (boys') hall of the Devon's Road school, Bow and Bromley, in which to carry out their first scheme of decoration. The Council have submitted in outline an "Empire" scheme of decoration illustrating life and industry in the British Dominions beyond the seas, which the committee consider should be approved. Steps will be taken by the War Relief Council to proceed with the preparation of the scheme, and the committee propose, in due course, to ask the chairman of the council to unveil the work and to receive the presentation on behalf of the Council.

An estimate of £15,700 was submitted by the Finance Committee in respect of the acquisition from Mr. H. Apperholt of his leasehold interest in No. 75, West Strand, one of three properties which project beyond the line of the widening which has been effected to the east of the site and for which arrangements have been made to the west.

The Improvements Committee recommended that the widening of Lavender Hill further westward be carried out in front of the new building for the Electric Pavilion Company. The effect of the improvement will be to increase the width of the road from 53 ft. to a width varying from 61 ft. 1 in. to 64 ft. 9 in. for a distance of about 92 ft.

In consequence of representations from H.M. Treasury that they are not prepared to approve of the continuance of expenditure for the erection of the Eleventh Asylum, steps have been taken to stop work on the buildings as early as possible. This has involved negotiations as to terms with Leslie and Co., Limited, the contractors for the building construction, and with the Brightside Foundry and Engineering Company, the contractors

for the installation of a heating plant, under both contracts being as yet uncompleted. The terms which have been arranged, subject to the approval of H.M. Treasury, and to the execution of a formal agreement, are:—(a) The Asylums Committee reported that Leslie and Co., Limited, to be paid for the work done up to the time agreed for the temporary closing down including certain compensation necessary to prevent damage to the structures. (b) On completion of agreement for half (£1,000) of the retention money as compensation for suspension of work, the sum of £16,000 payable in two instalments, viz., £8,000 on completion of agreement and £8,000 on resumption of work. (c) Work to be resumed one year after declaration of peace or earlier by arrangement. Heating Installation Brightside Foundry and Engineering Company. (a) Contractor to be paid the balance of contract value less retention money on all permanent work executed, (b) the contract value as estimated by the engineer of all materials delivered and stored on the site, (c) interest at the rate of 5 per centum per annum from January 1, 1916, until date agreed for resumption of work on the amount of retention money in committee's hand at suspension of work. (d) Work to be resumed one year after declaration of peace or earlier by arrangement. (e) Any increase or decrease of cost to the contractor of completing the work after date of resumption due to any advance or decrease of prices of materials not already obtained and rates of labour as compared with those obtaining at date of contract, to be paid to the contractor or allowed by him, as the case may be.

It was stated that the total gross amount of insurances against fire effected in London in the year 1914 was £1,152,838,453, and the contributions based thereon and payable to the Council towards the expenses of the London fire brigade in 1916 amount to £40,347s. 2d., this being exclusive of the annual contribution of £10,000 made by H.M. Treasury.

As to the new County Hall in Belvedere Road, the Establishment Committee reported that they had authorised the settlement at £1,650 and £6,000 of claims of Holloway Brothers, Limited, in respect of certain machinery, etc., in their premises on the site of the hall, and had arranged for the sale of the machinery in question. The committee have approved a proposal for the extension, at an estimated cost of £1,500, of the return of the river wall some distance further behind the existing river front than was contemplated and have arranged for the work to be executed by Morrison and Mason, Limited, the contractors for the river wall extension, as an extra on their contract. The supply and erection of the ornamental cast-iron lamps in connection with the river wall extension will be postponed and omitted from the contract for the construction of the extension. Permission has been given to Holland and Hannen and Cubitts, Limited, the contractors for the superstructure of the new county hall, to sub-let Messrs. A. C. W. Holman and Co., a portion of the asphalted work included in their contract. The committee have authorised the letting to Messrs. Hampton and Sons of part of the wharf vacated by Holloway Brothers, Limited, at a rent at the rate of £750 a year, the tenancy to be for six months certain and thereafter subject to three months' notice on either side. Possession of part of these premises was given to Messrs. Hampton on October 2, 1915, subject to payment of rent at the rate of £500 a year, the agreed rent of £750 a year to become payable on full possession of the premises being given. Permission has been granted to the 20th Battalion of the King's Royal Rifle Corps to use for part of the premises vacated by Holloway Brothers, Limited, subject to the payment of rates and taxes, including the rate of £500 a year, the agreed rent of £750 a year to become payable on full possession of the premises being given.

The Establishment Committee reported that the committee have authorised the department which is to be established before the end of the month of February, up to and including March 31, 1916, that Mr. A. E. B. . . .

first class, and Mr. E. J. P. Ebbs, a clerk of works in the architect's department, be seconded to the estates and valuation department as from the 12th and 13th inst. respectively. The Committee further reported that Mr. C. E. Perkins, a clerk of works in the architect's department, has been certified by the Council's medical examiner to be permanently unfit for further service. Mr. Perkins, who is 52 years of age, entered the service of the late School Board for London in 1898, and is now in receipt of a salary of £250 a year. A retiring allowance amounting to about £77 a year will be payable to him out of the superannuation and provident fund.

The Committee reported that Section 28 (b) of the London Electric Railway Act, 1911, provides that the approval of the Council shall be obtained by the London Electric Railway Company to plans of exits and entrances of the station to be constructed beneath Warwick Avenue, in connection with the Queen's Park extension of the railway. Without obtaining the Council's approval, however, the company proceeded to erect a substantial brick building at the exit from the station on the north-east side of Warwick Avenue, with the result that the Council, on December 15, 1914, decided to seek an injunction against the company in the High Court. A settlement, however, has now been arrived at under which the company will substitute an iron and glass structure for the brick building, the height of the roof of such structure not to exceed 5 ft. above the pavement level. The company will also pay the Council's taxed or agreed costs of the action.

The Building Act Committee reported that in order to fill temporarily vacancies for district surveyors, they had appointed Mr. S. F. Monier Williams, district surveyor for the district of St. George, Hanover Square (Belgrave and Pimlico portions), to be interim district surveyor for the district of St. Pancras, South, and Mr. E. W. Lees, district surveyor for the district of St. Pancras, North, to be interim district surveyor for the district of Stoke Newington. Each of the appointments dates from December 1, 1915, and will continue during the pleasure of the Council. The Committee have appointed Mr. C. W. Surrey, district surveyor for the district of City of London, West, to fill temporarily the vacancy caused by the death, on October 13, 1915, of Mr. E. R. Hewitt, district surveyor for the district of St. Saviour and St. George-the-Martyr (part), Southwark, and North Lambeth. They have in these three cases appointed existing district surveyors temporarily to the positions, as it was thought unwise to recommend the Council to appoint any new district surveyors during the war. The Committee have extended for another year the period of office of the undermentioned district surveyors who have passed the retiring age limit—Mr. F. Hammond (district of Hampstead), Mr. H. Lovegrove (district of Islington, South, and Shoreditch), and Mr. T. E. Mundy (district of Chelsea). They have reappointed for another year Mr. J. Goodchild, interim district surveyor for the district of Islington, North, and Mr. A. W. Tanner, interim district surveyor for the district for St. George-in-the-East. These two officials have passed the retiring age limit, but their services have been retained for several years past in a temporary capacity. The Committee have further consented, under Section 142 of the London Building Act, 1894, to the appointment of deputy district surveyors in twelve cases.

A Local Government Board inquiry has been held at Portland into the application of the when district council for permission to borrow £1,900 for the construction of a second water main, which the surveyor (Mr. A. S. Lilley) stated would stop a wastage of 60,000 gallons a day.

The committee engaged in providing additional hospital accommodation in Bradford have adopted a scheme estimated to cost £15,500. The scheme involves new buildings, including a mortuary and post-mortem room, and the enlargement of the stores, with complete equipment. The architect is Mr. Holland.

## Correspondence.

### INCREMENT VALUE DUTY AND THE LUMSDEN CASE.

To the Editor of THE BUILDING NEWS.

SIR,—Although the Land Union is anxious to avoid anything in the nature of political controversy at the present time, it nevertheless considers it a duty to draw attention to the following facts.

Mr. Lloyd George recognised the unfairness of the claim for increment value duty in the above case, and when the Revenue Bill was in Committee in the House of Commons on August 1, 1913, he stated that Clause 2 in that Bill was inserted "in order to protect people like Mr. Lumsden." Unfortunately the Bill did not reach the Statute Book, and the same fate befell the Bill of the following year, into which a similar clause was introduced. Nevertheless, the Prime Minister and the Secretary to the Treasury, on July 23, 1914, undertook, on behalf of the Government, to introduce a one-clause Bill to annul the effect of the Lumsden judgment, and to bring the assessment to increment value duty into harmony with the original proposals put forward when the Budget of 1909 was introduced into the House of Commons—viz., that there must be a rise in the value of the bare site before increment value duty is demandable.

War having broken out, the Land Union makes no complaint that the Government has been unable to introduce this Bill, but it does complain that after the injustice suffered by Mr. Lumsden was fully recognised by the Government the Commissioners of Inland Revenue continue to demand, under threat of legal proceedings, increment value duty under the Lumsden judgment, when it is agreed that there has been no rise in the value of the bare site, and have actually issued writs to enforce their claims.

In Mr. Lumsden's case they write that unless £22, the duty demanded, and costs amounting to £249 9s. 4d., are paid, they will take legal proceedings without further notice or delay.

The Land Union deprecates this action as likely to provoke ill-feeling at the present time, and urges that either the promised Bill should be passed without delay, or, in the event of that being impossible, the Commissioners of Inland Revenue should be instructed not to press their claims in these cases until Parliament shall have had time to deal with the matter.—Yours obediently,

DESBOROUGH,

Chairman of the Council.

St. Stephen's House, Westminster, S.W.

### ARCHÆOLOGICAL.

A PREHISTORIC BRONZE CHISEL.—On the farm of Balnail, New Luce Parish, there has been unearthed a cinerary urn containing bones and a bronze tool. Mr. James McQuisten, tenant of the farm, sent the articles to the National Museum of Antiquities, Edinburgh, and he has received a letter from Mr. James O. Curle, director of the Museum, stating that the find is of very unusual interest, as in all the years the institution has been in existence, since the end of the eighteenth century, no bronze implement of the same form has been added to the collection. The interest was further enhanced by the association of a cinerary urn and a burial by inhumation, the type of urn being usually accompanied by burnt bones. The bronze object is a chisel, with a tang at one end, which has possibly been inserted into a handle of deerhorn. Such tools are rare in Scotland. They have been more frequently met with in England, and are still less common in Ireland. The burial, Mr. Curle says, has belonged to the later period of the Bronze Age, and though it was impossible to give even an approximately accurate dating, the probability was that the interment took place some six or eight centuries before the Christian era. The tool would be formed by casting.

The county council of Fermanagh have decided to build a central dispensary on the grounds attached to the county gaol at Enniskillen.

### OBITUARY.

We regret to announce that Mr. Henry Arthur Cheers, of 73, Philbeach Gardens, Earl's Court, and formerly for many years of Twickenham, and who was well known as a successful entrant in architectural competitions, succumbed to an attack of heart disease on the 15th inst. Mr. Cheers, who was born February 24, 1853, and had thus nearly completed his sixty-third year, was educated at King William's College, Castle-town, Isle of Man, and was articled to Messrs. Charles Barry and Son, architects, of Liverpool. Among the many commissions gained in open competition and carried out by Mr. Cheers were the Town Halls at East Ham, cost £49,000; Hereford (illustrated in the BUILDING NEWS for August 9, 1901), selected from 146 designs sent in, and cost £25,000; Ludlow (and markets), cost £6,000; Huxton, near Liverpool, cost £5,000; Public Libraries, Port Elizabeth, South Africa (and Savage Memorial Hall), cost £30,000; Doncaster (and School of Art), £8,000; Teddington (Carnegie), £4,000; and Hull, Beverley Road Branch Library (illustrated by us October 12, 1894). Technical, Secondary, and Board and Council Schools: East Ham Technical College, cost £22,000; Colchester, cost £15,000; West Hartlepool, cost £12,000; Preston, cost £12,000; Stockport, Chester-gate Schools (in conjunction with Mr. Joseph Smith, of Blackburn, and illustrated in the BUILDING NEWS for April 7, 1905), £12,000; also the Greek Street and Reddish Schools. Stockport, cost £14,000 and £12,000 respectively; Blackburn, Accrington Road School, £12,000; Twickenham, Third Cross School, £14,000; Southport, Linaker Road School, £13,000; Oldham, Clarksfield Board Schools (in conjunction with Mr. Smith, of Blackburn, and illustrated by us, January 22, 1904), £8,000; Chelmsford Grammar School, £17,000; and Earl's Colne Grammar School, £3,000. The Sessions Courts, Birkenhead, were designed by Mr. Cheers and carried out in conjunction with Messrs. Barry and Sons, Liverpool, at a cost of £35,000. Mr. Cheers also carried out Messrs. Hammond's Clothing Factory, Manchester, £16,000; Messrs. Hepworth's Cloth Factory, Claypit Lane, Leeds (illustrated by us May 13, 1892), £9,000; Harlow Manor Hydropathic Establishment, £14,000; Pierhead Buildings and Arcade, Douglas, Isle of Man, £10,000; Scarborough Constitutional Club (illustrated by us October 28, 1887), £7,000; Bedford Town and County Club (illustrated October 14, 1887), £5,000; St. Anne's Church, Bagshot, for H.R.H. the Duke of Connaught, £6,000; St. Stephen's Church, Blackburn, £5,000; Church at Maidstone, £3,000; Wesleyan Chapel, Swindon, £6,000; and Jubilee Clock Tower, Margate, £2,000. In the Government competition for the National Museum, Dublin, Mr. Cheers was awarded the first premium of £650, but the building has been erected from designs by Sir Thomas Deane and Sons, of Dublin, at a cost of £200,000. Mr. Cheers's second premiated design for Walsall Town Hall was illustrated by us February 3, 1893, and that which gained the third premium in the Battersea Town Hall competition on December 18, 1891. Mr. Cheers married in 1880 Miss Isabella Heriot Anson, who survives him, together with three sons and a daughter. Of these sons Alexander, an engineer, is now engaged on munition work; Wilfroy Anson, an architect, is a Second Lieutenant in the Third Lancashire Fusiliers; and Donald Anson is at the French front; their third son, Ronald Anson Vlasson, an architect, was killed in action in France on September 23, 1915. Mr. Cheers's funeral took place at Twickenham New Cemetery on Tuesday in last week.

The death is announced, at his residence, at Moseley, of Mr. J. P. Sharp, architect, of County Chambers, Birmingham.

The French landscape painter Louis Japy, one of the last surviving pupils of Corot, has died in Paris, in his seventy-ninth year.

The partnership hitherto subsisting between W. Gimson and T. Y. Gimson, under the style of William Gimson and Sons, at Leicester, timber merchants and builders, has been dissolved.

## Our Illustrations.

GOTHIC ARCHITECTURE, BY SIR THOMAS GRAHAM JACKSON, BART, R.A., F.S.A.

The four illustrations here given illustrate our review of Sir Thomas Graham Jackson's book on "Gothic Architecture," which will be found on p. 83.

### CHURCH OF ST. JAMES THE GREATER, LEICESTER.

The completion of the western portion of this church consists of an extension of three new bays to the nave and aisles, together with baptistery and entrance vestibules. Externally the walls are faced with 2-in. Staffordshire multi-coloured bricks and Ancaster stone. The figure of the patron saint is in Portland stone, and the roof is covered with old Swithland slates. Internally the original treatment of terracotta and Woodville sand-stocks has been repeated. The central portion is designed to eventually carry a campanile which it is hoped will rise about 160 ft. from the ground level, the present pediment, of course, being removed. The building was designed and has been carried out under the supervision of Messrs. Goddard and Catlow, F.F.R.I.B.A., of Leicester, who also designed the original part of the church some years ago. There are vestries and a parish-room under the eastern portion of the church, advantage having been taken of a rapid slope in the ground to provide these. The general contractors for the extension were Messrs. Clark and Garrett, of Leicester, and for the masonry Mr. Walter Davis, of Worcester. The figure of St. James and the alabaster font were executed by Mr. Moreton, of Leicester, and the architectural carving by Messrs. Martyn, of Cheltenham, all from the architects' designs. Besides the plan we give a small photograph of the very pretty font, and our double-page plate shows the west front, now completed, and a detail picture of one of the pair of entrances at this end of the church.

### NEW PREMISES, REGENT STREET, W. IN CONTINUATION OF THE REBUILDING OF OXFORD CIRCUS.

Mr. Henry Tanner, F.R.I.B.A., is the architect responsible for the elevations of these buildings, which form an important part of the scheme prepared for the Office of Woods and Forests, on behalf of the Crown. We published the general elevation of this block, now in progress of erection, in our issue for December 29 last. To-day we give a double-page sheet of large details, reproduced from Mr. Tanner's working drawings. The general contractor is Mr. James Carmichael,

With the particulars printed by way of brief description when the façades were illustrated, an explanation appeared in respect to the several architects employed. Messrs. Stephens and Munt, of Chelsea, are engaged in supervising the execution of these premises, and Messrs. Dunn, Watson, and Curtis Green, F.F.R.I.B.A., are the architects of the Union



### FONT, CHURCH OF ST. JAMES THE GREATER, LEICESTER.

Messrs. GODDARD and CATLOW, F.F.R.I.B.A., Architects.

of London and Smiths Bank, which is situated at the corner, and takes up the whole of the elevation on the return front facing Little Argyle Street, the entrance to the bank being on the splay, as shown by the accompanying details.

### A COUNTRYSIDE HOUSE, NEAR REIGATE, SURREY.

This house occupies a prominent position at the foot of the North Downs, not far from Reigate, among the Surrey hills, and commands extensive views over the Weald to Leith Hill and Hindhead. The exterior of the house is faced with local red kiln bricks; the timber framing is of oak, left natural colour, and the roof is covered with Collier's hand-made sand-faced tiles, from Reading. The main staircase is in oak, and the dining room walls are wainscot-panelled. The floor is also of oak. The drawing and morning rooms are arranged so that they can be thrown into one. There is a central heating system, supplied by an independent boiler. The builders were Messrs. Elsey and Hodge, of Reigate, and Mr. C. E. Salmon, M.S.A., also of Reigate, is the architect.

Mr. Norman D. Preston, assistant surveyor to the Burnley Rural District Council, has been appointed surveyor and sanitary inspector to the Mayfield (Ashbourne) Rural District Council.

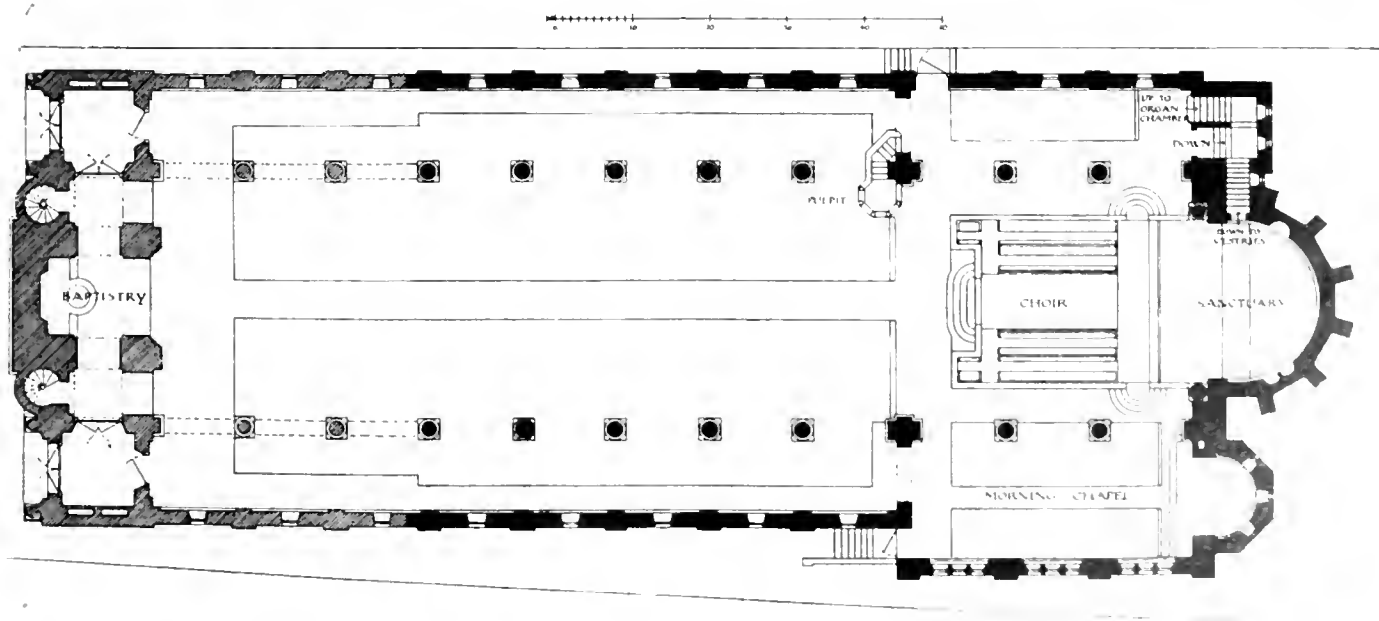
A faculty has been granted for the restoration of a rood, with the figures of St. Mary and St. John, on a beam across the arch of the chancel of the parish church at Hawarden, in memory of the late Lieut. D. G. C. Gladstone, M.P.

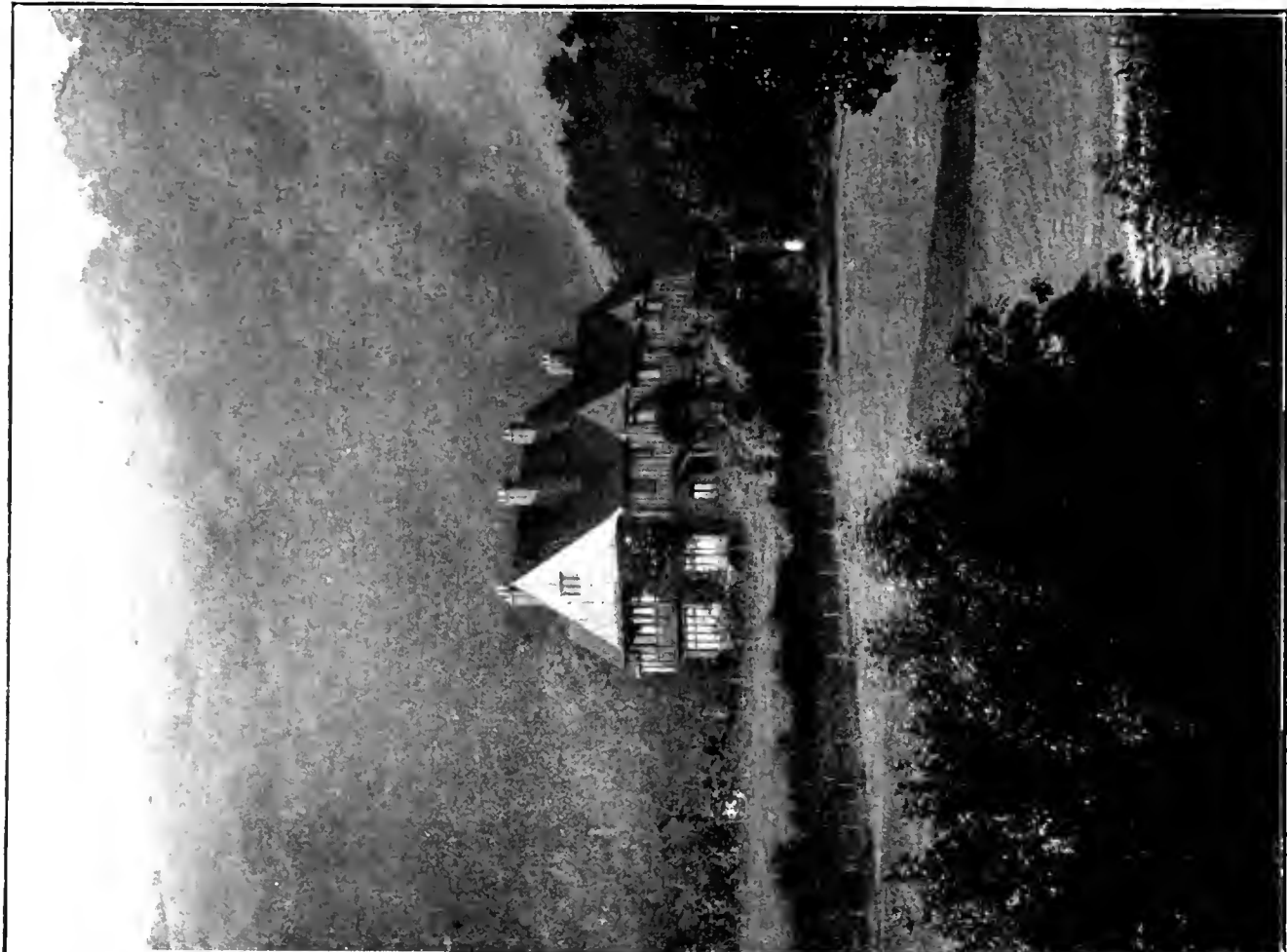
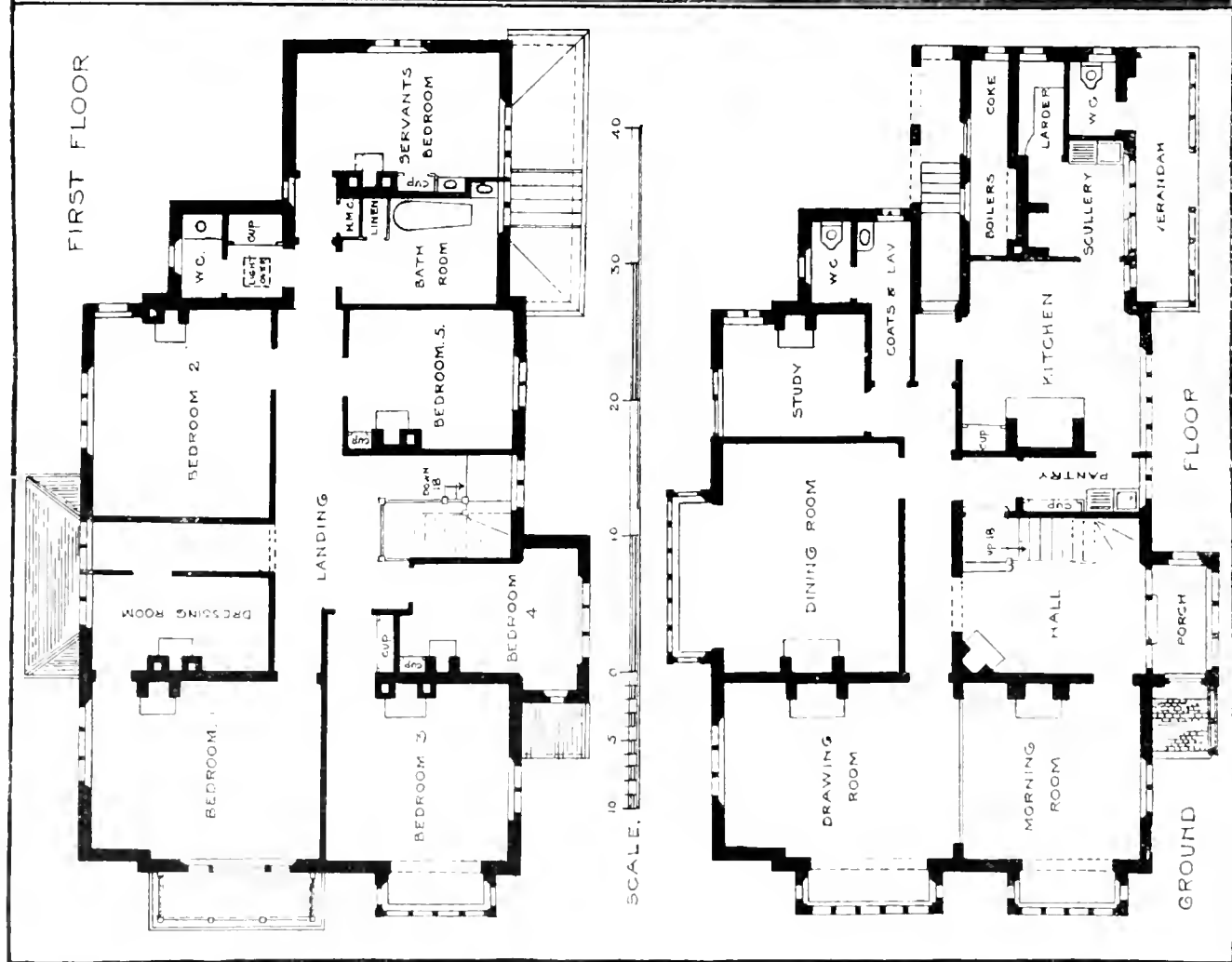
The lower floors of No. 8, Parliament Street, Dublin, with a depth of some 70 ft., are being cleared away, and will be fitted out as showrooms and offices for Sir Patrick Shortall, the High Sheriff of the city and a well-known contractor. His building works will remain as before at Upper Temple Street.

At the forty-ninth annual convention of the American Institute of Architects, held in Washington, D.C., the following officers were elected for the ensuing year:—President, Mr. John Lawrence Maura, St. Louis; vice-presidents, Messrs. C. Grant La Farge, New York, and Milton B. Medary, jun., Philadelphia; secretary, Mr. Burt L. Fenner, New York; treasurer, Mr. D. Everett Ward, New York; directors for terms of three years, Messrs. Edwin H. Brown, Minneapolis, Ben J. Lubsch, Kansas City, and Horace Wells Sellers, Philadelphia.

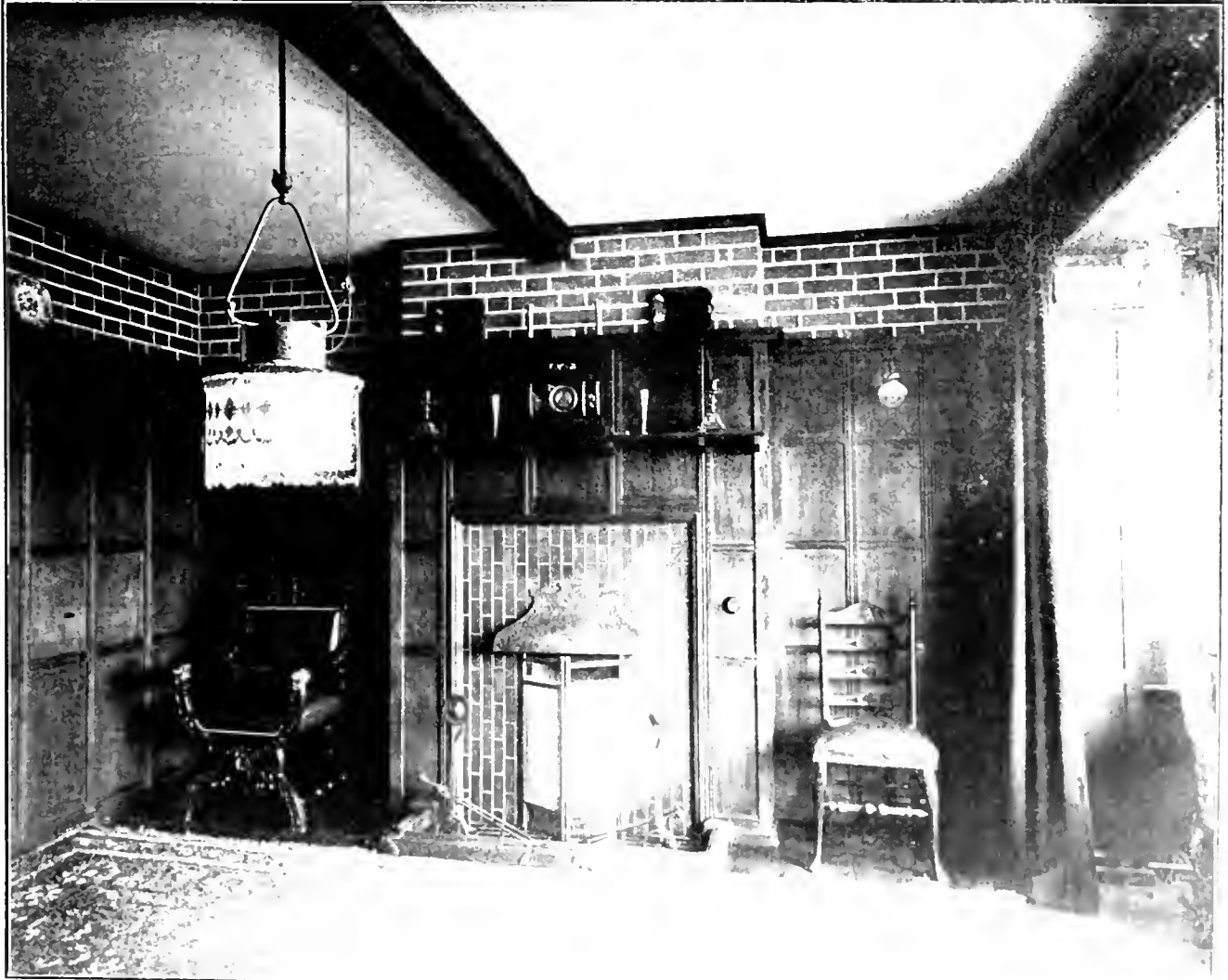
At Shaw, near Rochdale, the Crompton Co-operative Society have erected twenty houses at rents varying from 5s. 3d. a week to 8s. 3d. a week. Each house has at least three bedrooms, a bath, hot and cold water throughout, and a garden both at the back and front. Not more than fourteen houses have been erected on one acre of land. It is the intention of the society to build another 82 houses of a similar class on the estate. All the houses will be semi-detached, and the majority of them will be let at 5s. 3d. per week.

## CHURCH OF ST. JAMES THE GREATER, LEICESTER.









W. F. Taylor, Reigate, Surrey.

A COUNTRYSIDE HOUSE NEAR REIGATE, SURREY. VIEW FROM THE GARDEN.  
THE DINING ROOM.—MR. CHARLES E. SALMON, M.S.A., A.C. 2014.

## Currente Calamo.

Mr. Asquith stated in the House of Commons on Thursday, in reply to Mr. W. T. Wilson, a Labour member, that he had received no request from the London Master Builders' Association to meet a deputation from that body to discuss the question of suspending or cancelling contracts entered into prior to August 4, 1914. The question of the injustice of compelling builders who had entered before the war into covenants to erect buildings or take up building leases to comply with the strict letter of their undertakings was raised, it will be remembered, a short time since by Mr. Howell Williams, and the London Master Builders' Association proposed to memorialise the Premier. Many complaints of equally hard cases reached the council of the association from all parts of the country, and the question was referred to the National Federation of Building Trades Employers, who have had under consideration the wider subject of the double penalisation of builders and contractors under the present abnormal conditions. On the one hand, they are compelled by the growing scarcity of labour and the increased cost of living to grant war bonuses to such aged, infirm, or otherwise indigible workmen as remain in their employ, while building owners expect them to bear the entire loss involved in the greatly enhanced prices paid for materials and the rise in wages. The whole matter will come before the National Federation at their annual meeting, to be held at the Holborn Restaurant this (Wednesday) morning, when it is probable it will be referred to a special committee, who will decide as to the steps that shall be taken, whether by deputation to the Government or by direct promotion of a Bill. We fear from past bitter experiences no deputation is likely to get anything out of Mr. Asquith!

It is announced that the Wallace Collection, the British Museum, and the Natural History Museum are to be closed to the public next month at the instance of the Treasury Retrenchment Committee. It is rumoured that other national museums and galleries are also to be closed. The reason put forward is economy. We suppose the officials' salaries, the ventilation and dusting, caretaking, fire patrolling, and other expenses will go on as usual, and that "economy" really means the saving of payments for some policemen and a very few attendants. To effect this the many thousands of our fellow Britons from beyond the seas will find the doors shut in their faces of the treasure-houses of our best, in order to save a few hundreds. Meanwhile Germany is keeping open her galleries and museums and her grants for art purchases and purposes. The comparison is not flattering to British Philistinism, but the Treasury cares as little for that as it does for complaints about its expenditure of the Post Office!

Mr. Lawrence W. Chubb's paper at the Royal Society of Arts last week was a good record of the excellent work during the last fifty years of the Commons and Footpaths Preservation Society, of which he is the secretary. Between 1710 and 1809 about 5,000,000 acres of common lands were divided, 219,724 acres being enclosed in the counties bordering London. Some of this land has since been repurchased on behalf of the public, as in the case of Hainault Forest. Greater London still

owns 15,900 acres of common land, but within twenty miles of the capital there remain tracts the enclosure of which was decreed seventy years ago for growing corn, but which have never even been fenced. When the Society was founded commons were being ruthlessly absorbed. Epping Forest was fast disappearing, Hampstead Heath was threatened, and Tooting and Plumstead Commons and Bostall Heath were already enclosed. Wimbledon Common was saved by a board of Conservators, which in order to secure the payment of an annuity of £1,200 to the Lord of the Manor levied a rate on all dwelling-houses within three-quarters of a mile, in proportion to their nearness to the common, a novel expedient which was confirmed by Parliament, and might be repeated in other neighbourhoods. The Corporation of London spent nearly £300,000 in Epping Forest in buying out manorial rights and in legal expenses, and in consequence of its action over 3,000 acres were restored to the Forest. There remain about 2,300 acres of unregulated commons in the metropolitan area, the most important being at Epsom and Thames Ditton. Illegal enclosures are still taking place, and undesirable schemes of afforestation require to be watched. No one can assert that London is too well equipped with facilities for recreation when it is realised that there is but one acre of open space in London proper for every 678 inhabitants, while in Southwark there is only one acre for every 14,500 persons.

Now the "Zeps" have come again we hope there will be a good representative attendance at the meeting which is to be held at the Mansion House at 3 p.m. on Friday, February 4, under the presidency of the Lord Mayor, at the instance of the East Coast mayors and others, to protest against the Government scheme of insurance against damage by hostile aircraft or bombardment. We have from the first similarly protested against the scheme, which is absurdly costly and unfair in details. The risk we all run is in no way of the same nature as in the case of fire or burglary, against which each of us is left to insure according to his individual needs. When property is damaged by riots the whole community very properly bears the loss; how much more should it not do so when it is the work of a foreign enemy against whose attacks the individual is powerless to defend himself, though, so far, not more so than his rulers.

In our jungle of legislation there is always a very bewildering undergrowth of by-laws. This is especially so in regard to all that relates to building. Our local authorities love nothing better than by-laws, and when they get statutory powers they all set to work busily framing by-laws about everything, which are passed by some clerk at the Local Government Board and then set aside and forgotten until wanted to worry a builder with, when they are fished up and enforced. The recent case of "Watson v. Winch" in the High Courts sheds a ray of light upon the muddles so often made in these matters. An important point of principle was involved, which is of practical moment to builders. The appellant, himself a solicitor, had been fined by magistrates at Norwich for riding a bicycle on the footpath, contrary to a certain local by-law made under the Norwich Improvement Act of 1879. But this local statute had been itself repealed by the Local Government Board Act, 1888, and therefore the by-laws based upon it were also at an

end. The legal rule applicable in such matters is that a statute that is repealed must be regarded as if it had never existed. So the High Court of three judges solemnly quashed this conviction, with its 2s. fine, and in so doing created a precedent for future use as to by-laws whose only foundation has thus been knocked away. The point of principle here, for the first time, decided makes one wonder how many more of these old local by-laws affecting buildings and their builders are now dead and illegal by the repeal of the local Acts on which they were once founded.

It is encouraging to note that some of the clergy are alive to the greatest scandal and most deadly danger of the present time—the scarcity of proper house accommodation for all but the wealthy. The Vicar of Walker, in his church magazine, refers to the corporation housing scheme in his district and says: "Houses for honest folk to live in, with plenty of sleeping room, are most seriously needed. We go on building sanatoria for the check of consumption, and we yet allow human beings to crowd into small rooms in which no gentleman would stable a good horse and no man put his hounds. When we have more fresh air in bedrooms we shall root out a lot of lung disease." Dr. Dickinson, at the Fever Hospital, told the vicar he believed it would pay to give people an extra half-crown per week to let them rent an extra bedroom rather than crowd them, when ill and past redemption almost, into consumptive homes. There is no doubt about that. Mr. Lloyd George's Budget of 1909 has made more consumption than his national insurance sanatoria will ever cure—even when we get them. It is only for other needs that the "magnificent hotels" can be commandeered when they cannot be built fast enough!

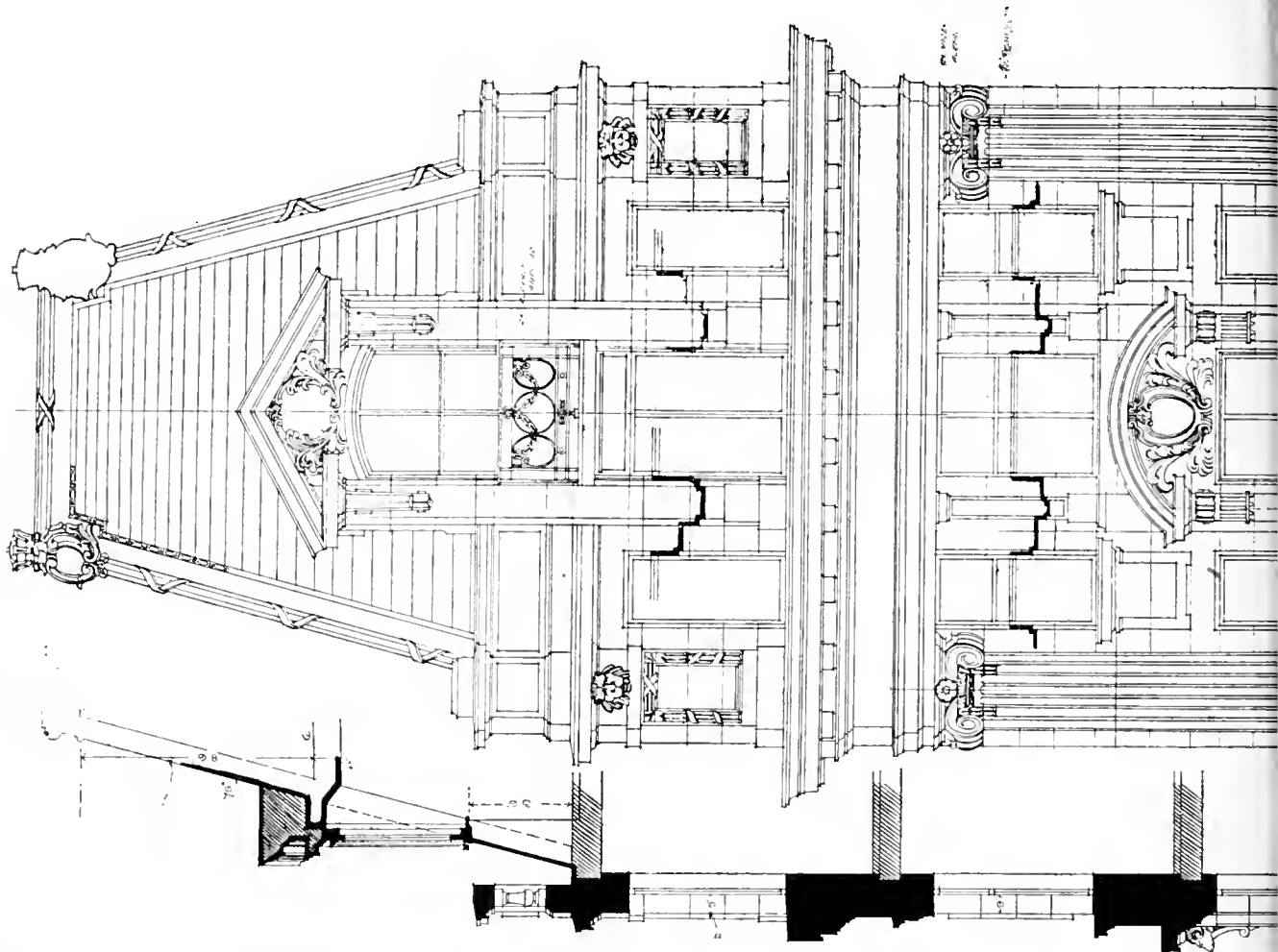
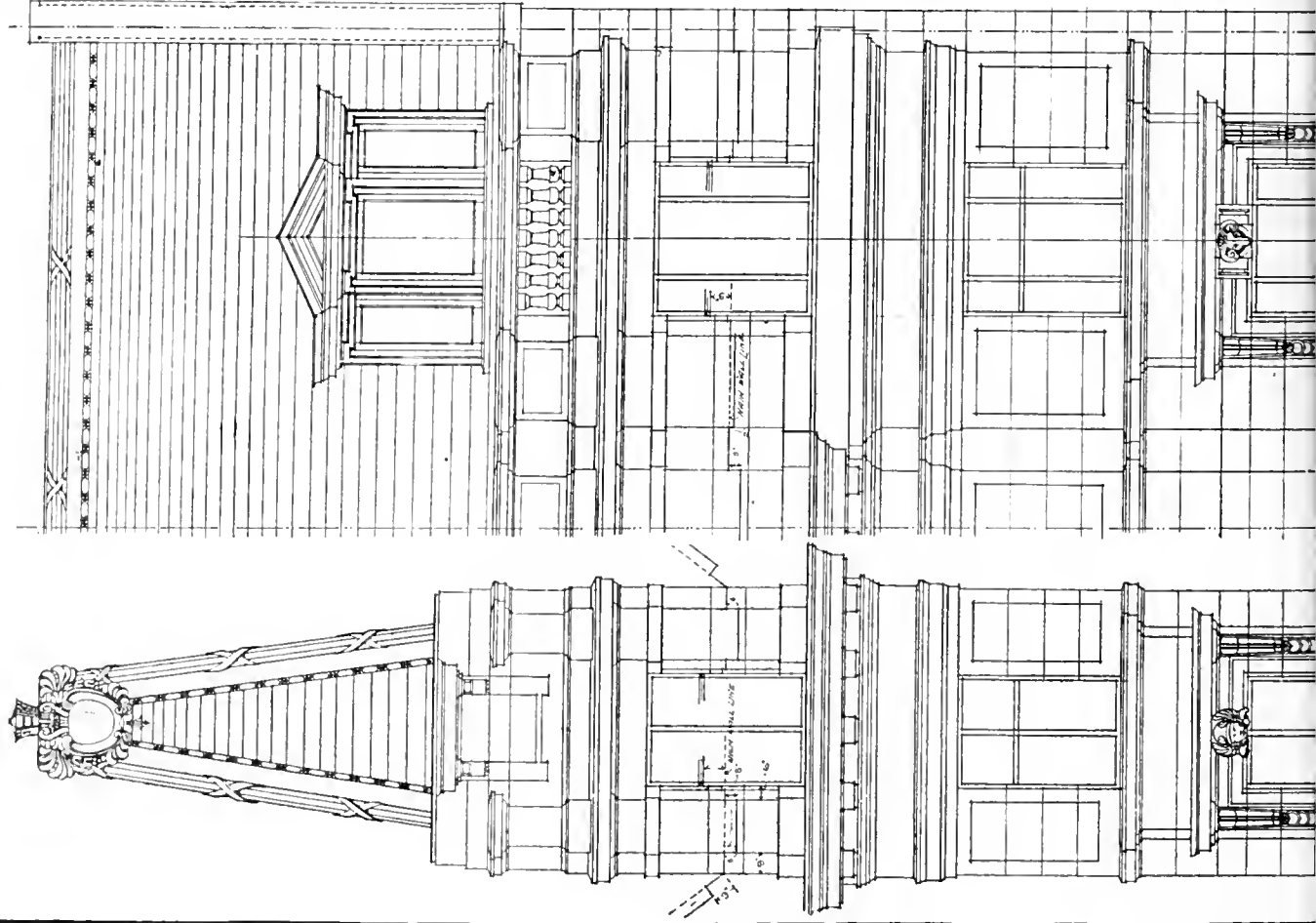
The successful conversion of the for some time past rather forlorn-looking open space in Staple Inn into a really well-planned and suitably arranged town garden is most creditable to all concerned, and well deserves the gratitude of all lovers of urban horticulture. The whole arrangement is thoroughly in keeping with the surroundings, and maintenance will be easy and not costly. The centre of the square is occupied by a stone fountain of unobtrusive design round which flagged paths and pleasant bands of turf intersect the four corners, which are planted with evergreens and other shrubs. Beyond these paths divide the centre from the borders, which are suitably laid out. We hope the conifers of all sizes, which add greatly to the general effect, will do well; we have had rather bad luck ourselves in the northern suburbs with specimens of the size of some of the larger ones, which seem to stand shifting badly.

In our last issue (p. 81) it was inadvertently stated that the designs of Messrs. Grainger and Leathart were selected for the proposed municipal buildings for Stepney. This is not so; Messrs. Grainger and Leathart were awarded the first premium in the competition, but the plans of Messrs. Briggs, Wolstenholme, and Thornely, of Royal Liver Building, Pier Head, Liverpool, were selected, and the borough council will employ the latter firm to carry out the buildings. Messrs. Briggs, Wolstenholme, and Thornely's design was illustrated in our issue of June 30, 1915, when a review was published of the competitive drawings sent in.





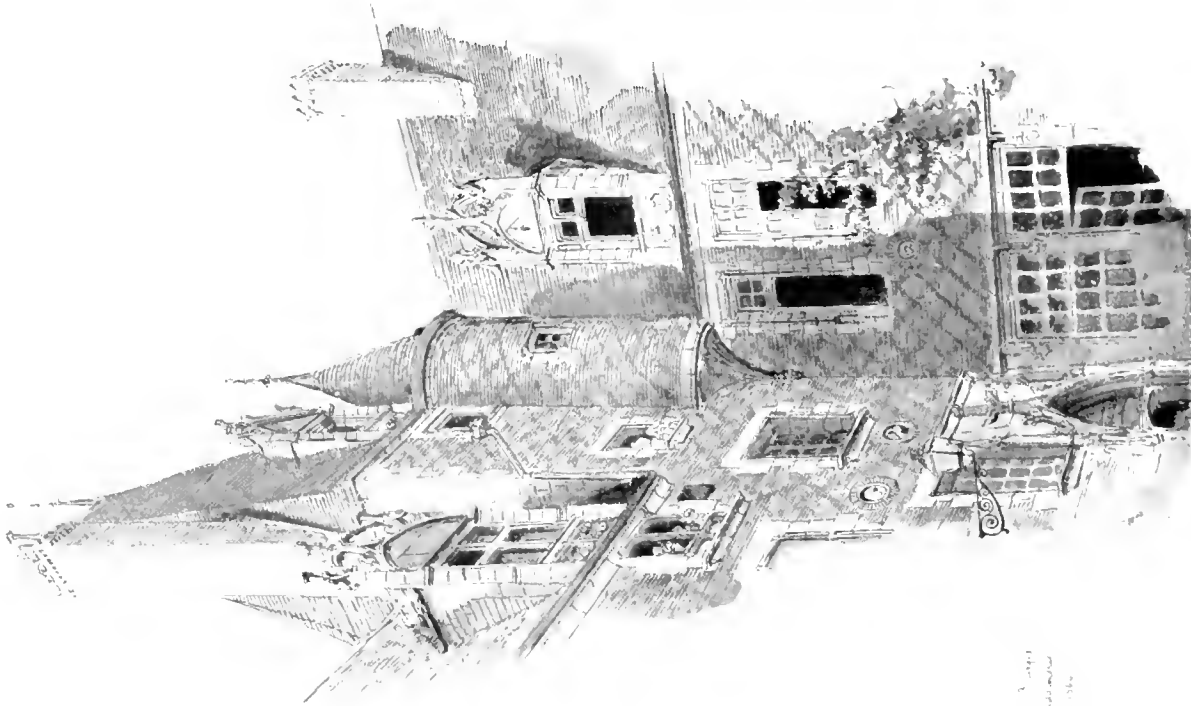
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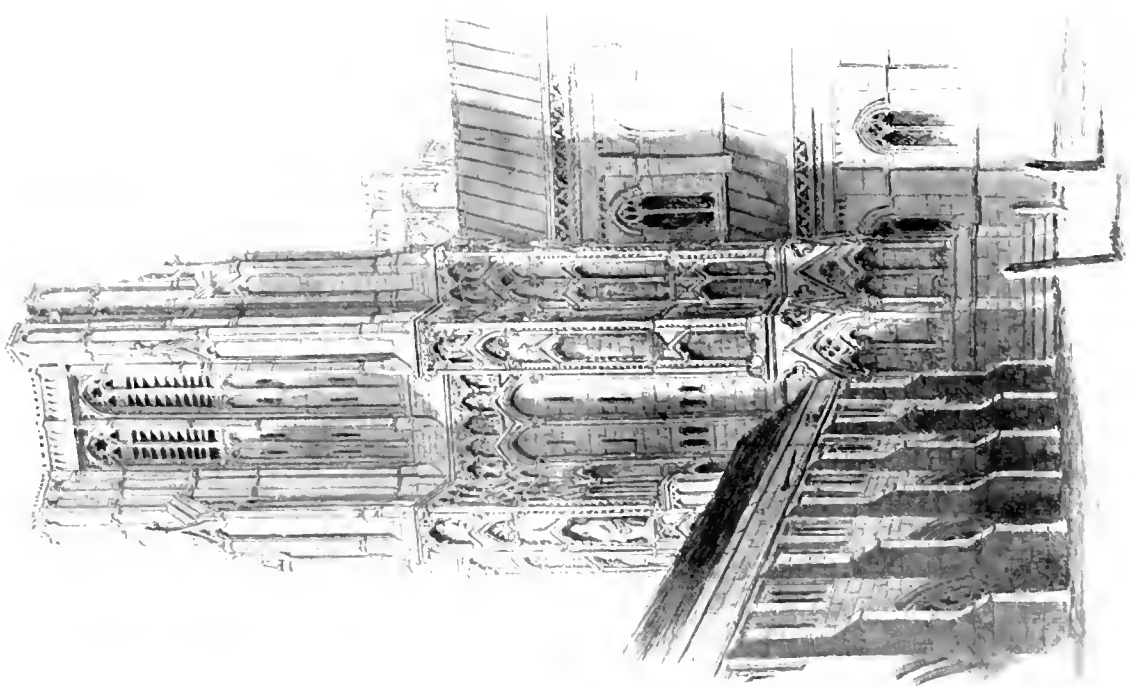




BOURGES—MAISON CUJAS

BY SIR THOMAS GRAHAM JACKSON, PART R.A., F.S.A. (See page 83)

*Gift from the  
National Academy of  
Design, New York  
City, N.Y., 1915*



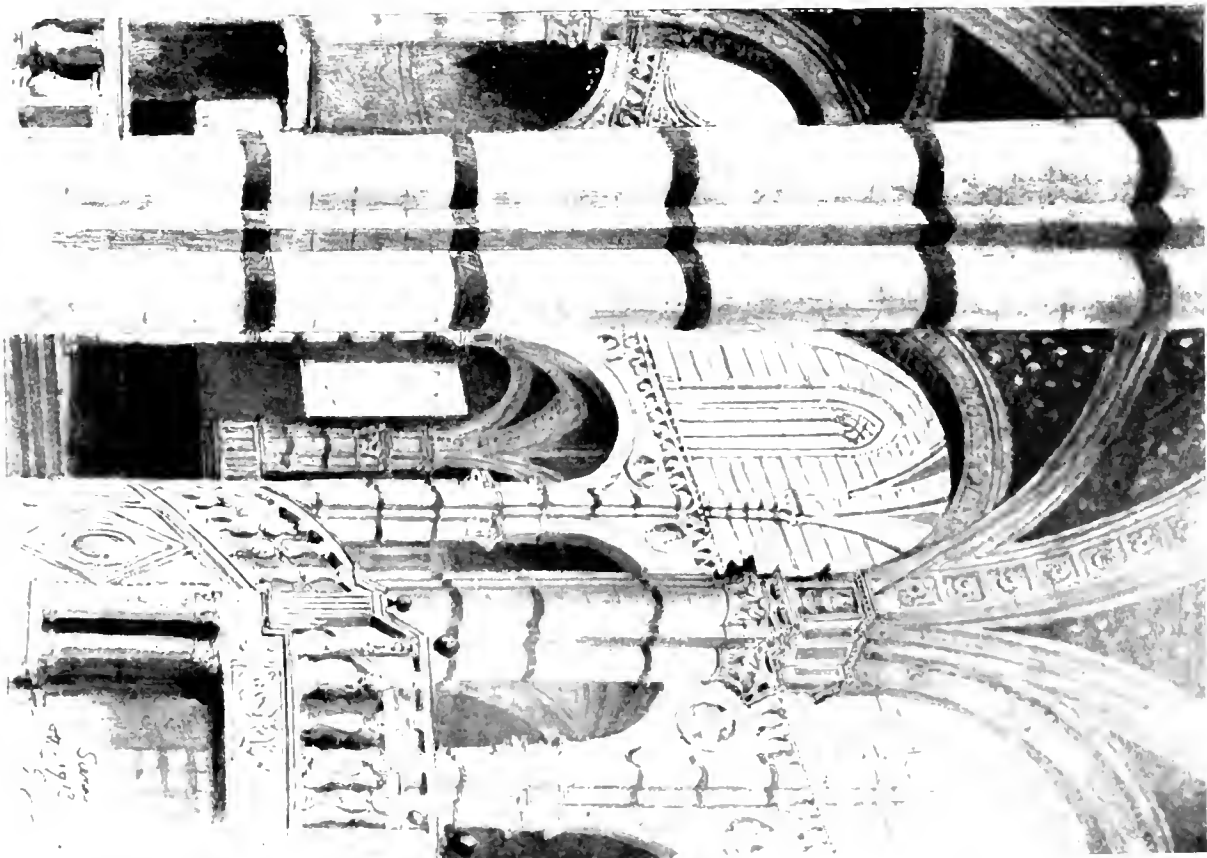
WELLS CATHEDRAL. VIEW FROM CLOISTER

FROM "GOTHIC ARCHITECTURE"

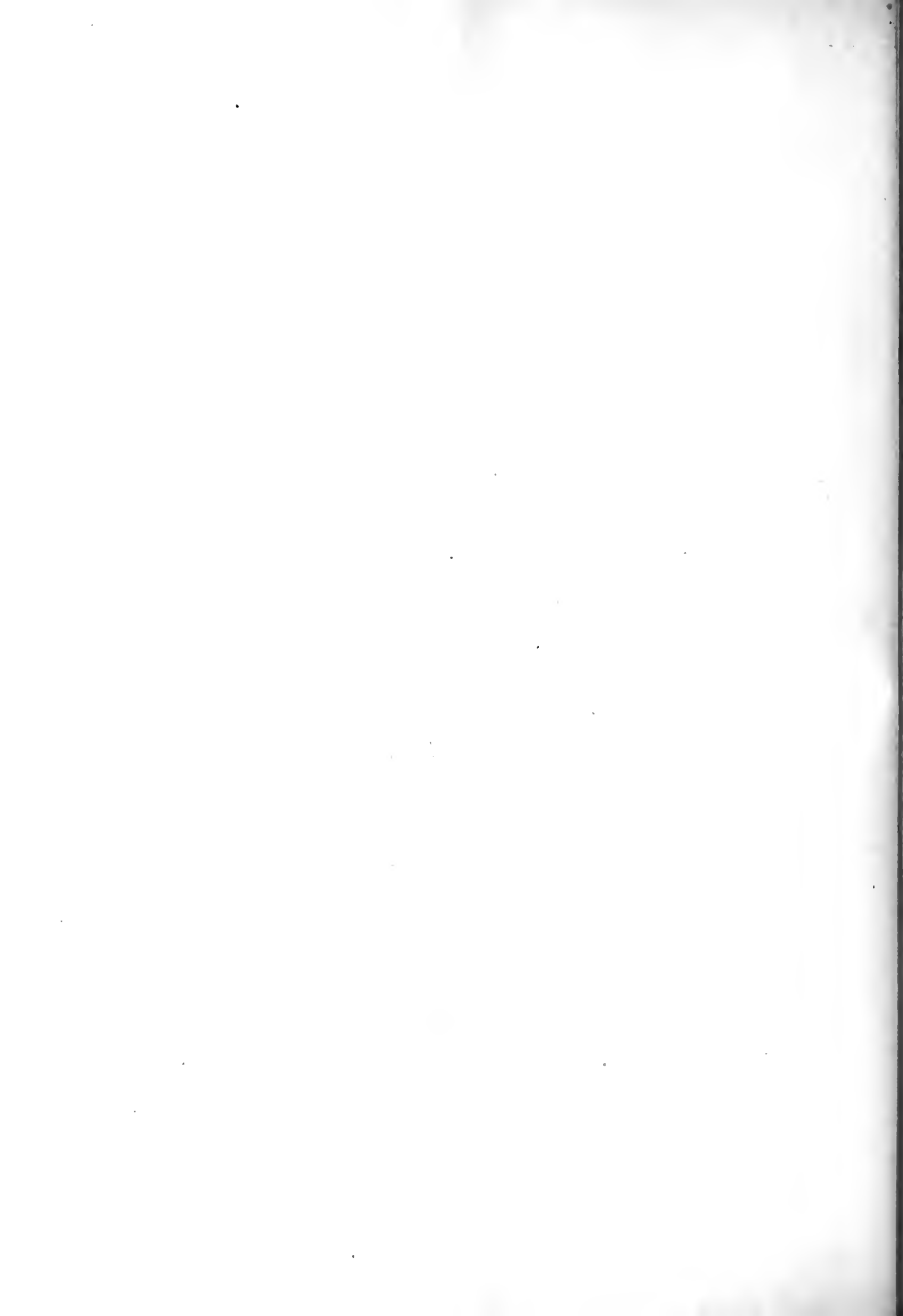




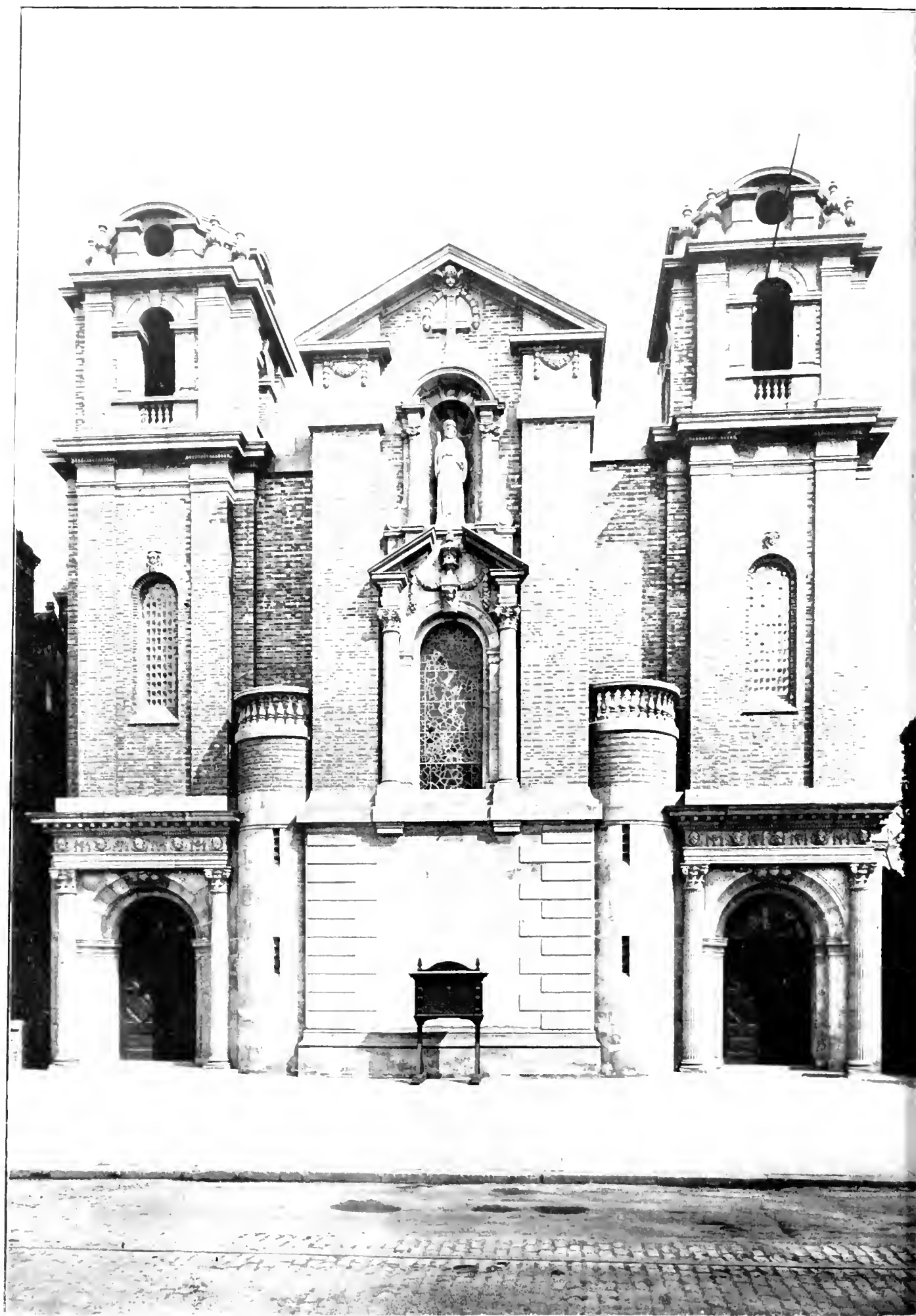
WEST.  
FROM CHOIR. ARCHITECT, ST. THOMAS GRAHAM JOHNSON, EAST, N.Y. (See page 87)



SEEN FROM THE CHORAL  
THE CHORAL







CHURCH OF ST. JAMES THE GREATER, LEICESTER







## COMPETITIONS.

**THE ASHPITEL PRIZE, 1915.**—On the recommendation of the Board of Architectural Education, the Council of the Royal Institute of British Architects have awarded the Ashpitel Prize for 1915 to Mr. Percy Joyce Adams, of "Fairmead," Woodside Road, Woodford, Essex (Probationer, 1906, Student, 1911), passed the Final Examination July, 1915), he being the candidate who has most highly distinguished himself in the Final Examinations held in 1915.

## LEGAL INTELLIGENCE.

**CORPORATION CONTRACTOR'S FAILURE.**—At the Birkenhead Bankruptcy Court, on Thursday, before Mr. D. R. White, deputy registrar, John Riddell, a contractor, residing at 85, Easton Road, New Ferry, came up for public examination. Mr. Barnes appeared for the petitioning creditors. The statement of affairs showed unsecured liabilities amounting to £3,490, and assets £967, consisting entirely of three book debts estimated by the debtor to produce that amount. The debtor attributed his insolvency to loss on contracts at Birkenhead and St. Helens, caused by not being able to obtain men suitable for the work in consequence of the war. Replying to Mr. Britten, assistant official receiver, the debtor said he was a stonemason by trade, and he commenced business originally as a contractor at St. Helens about 1882. He admitted that in 1892 he went through the Liverpool Bankruptcy Court, and had never obtained his discharge. His debts in that failure amounted to £3,478, and dividends of 5s. 0½d. in the pound were paid. From the date of that failure to 1913 he was employed as a foreman and clerk of works; but as he was getting old he had to give that up, and again commenced as a contractor, with a capital of about £20, which he had saved. His principal contracts were with the Lynton Urban District Council, St. Helens Corporation, and Birkenhead Corporation. Some months ago, as the work was not progressing satisfactorily, the two corporations took possession under the contracts. The amount entered by the debtor as being due to him from the corporations was disputed, and in one instance a claim would probably be made against the estate under the terms of the contract.—The examination was closed.

**DUNDEE ARCHITECT AND NEWSPAPER: HOUSE OF LORDS' DECISION.**—Lords Haldane, Kinnear, Shaw, Parmoor, and Wrenbury, sitting in the House of Lords on Thursday, unanimously upheld the appeal of John Leng and Co. Ltd., against an interlocutor, dated July 9, 1915, pronounced by the Lords of the Second Division of the Court of Session on the adjustment of issues for the trial of the cause by jury in an action brought by James Hendry Langlands against the appellants. By the interlocutor their Lordships opened up the record and allowed it to be amended in terms of a minute of amendment of record proposed by the respondent. Mr. Langlands is an architect carrying on his profession in Dundee, having held various public positions in the district. The appellants are the proprietors and publishers of the *Dundee Advertiser*. The House of Lords now ordered the judgment of Second Division of the Court of Session to be reversed, with costs in both Courts. The House held that the article was just and fair criticism and comment on matters discussed at the meeting and not capable of imputing. Mr. Condie Sandeman, K.C., and Mr. Charles E. Lippe appeared for the appellants, and the Lord Advocate (Mr. Munro, K.C., M.P.) and Mr. J. B. Paton for the respondent. The cause of the action was that in the issue of the *Dundee Advertiser* of October 7, 1914, they published an account of a meeting of the School Board of Dundee, with certain headings thereon, and also a leading article, both of which, it is alleged, reflected on Mr. Langlands' character, and made certain false and calumnious representations in regard to him, on account of which he had suffered greatly in his feelings and his reputation as an upright business man. The statements, he alleged, had seriously damaged his credit. Mr. Sandeman, K.C., for the appellants, contended that the article complained of was directed not against an individual, but against the scheme of the School Board. The pursuer was about July, 1886, on the death of Mr. David McLaren, appointed interim architect to the Dundee School Board. In November, 1905, his appointment as architect to the Board was made permanent, and the extent of his duties defined, the arrangement being that the Board undertook the supervision of repairs involving an expenditure not exceeding £500 and of the buildings generally, and that all work, both for new buildings and for additions or alterations to

existing buildings, should be done by him as architect. At this time the Board appointed the pursuer's assistant clerk of works for the Board to supervise existing buildings and repairs and alterations involving small expenditure, and discontinued the pursuer's retaining fee for this work. The pursuer was also appointed measurer, and the terms of his remuneration for these duties were fixed on a percentage basis. The newspaper commented adversely upon an arrangement of the School Board with its architect by which he undertook all work of the nature of alterations and additions to existing structures, while new buildings were submitted to open competition. It was further pointed out that for a considerable time past the "enlargements" had been much bigger jobs than the erection of new structures—e.g., the enlargement of Morgan Academy, costing about £20,000, and the projected enlargement of the Harris Academy, which would cost about £32,000. The rule, it continued, put a premium upon a certain kind of advice. Pursuer complained that the statements were false, calumnious, and malicious. Lord Anderson, in his judgment, had held that these complaints found no support in the language of the article. For the respondent, the Lord Advocate contended that it was not the rule but the person that was attacked. Lord Haldane pointed out that an architect who took an official part in bringing about a greater expenditure of the ratepayers' money was naturally open to criticism in the public interest. It was a duty in the public interest to criticise in these matters. How could it be said this was libellous?—The Lord Advocate: It was a direct imputation of dishonesty on the part of the architect. The Lord Advocate, in the course of further discussion, contended that it was not straining an interpretation of the article to say that the pursuer had made a low estimate in order to ensure the work going on. There was an imputation against the pursuer that he advised enlargements rather than new buildings in order to secure exemption from competition and get the job. If he did either of these two things he acted corruptly. Lord Haldane asked what there was directed against Mr. Langlands as architect. The Lord Advocate submitted that a fair impression from this article was that the pursuer had subordinated his duty to private interest, and that he did so in two ways—first, by advising extensions in order that he should not compete with other architects, and framing an estimate at a figure so that the work should proceed. These two imputations were to be found in the four corners of the article. He submitted that there was a case to go to the jury. Lord Haldane, in his judgment, said the question they had to decide was whether the Second Division was right in sending the issue which was framed in their presence to the jury. Lord Anderson originally decided that there was no case to go to the jury on the ground that the words, read by reasonable persons, did not bear out the imputing derived from them. It was before the Second Division that the form of the issue was somewhat modified, and that the learned judges came to the conclusion as to the issue which should be submitted to a jury. As to the facts of the case, there was a meeting of the School Board at Dundee, at which much comment was made on the fact that the estimates for a certain building, the Harris Academy, had turned out after a careful check double what the architect originally estimated. There was a comment by the chairman on the fact. According to the opinion of the expert measurers consulted, this could not be due to any rise attributable to war prices. There was a comment also made upon the system under which the architect had a regular engagement with the board, by which he was to be an architect paid upon commission on all alterations and enlargement of existing buildings, whereas in case of new buildings he was to be put in competition with the other architects. The chairman gave notice after some discussion that he proposed to bring up for consideration all the circumstances, and he proposed to ask the meeting to consider the termination of the agreement with the architect, which was obviously regarded as a bad system. The architect was a gentleman with a private practice, and could compete with other architects for the work of new buildings. Owing to his official position, which he combined with his private practice, he was entitled to a monopoly for the work brought in under the head of enlargements. In two cases—the Harris Academy and the Morgan Academy extensions—the sums of £32,000 and £20,000 were involved. The appellant newspaper

not only published in their columns a report of this meeting, the accuracy of which was not challenged, they also published a leading article, in which they commented upon the situation which had arisen between the Dundee School Board and an architect. The question their article had to decide was one of law. It was whether it was possible, if the language was read in an ordinary sense, to reasonably support the imputing suggested. It was not enough for the pursuer to say that the language was ambiguous, and that it was capable of one of two meanings. What they had to decide was whether the words in controversy in the appeal were capable of being considered libellous. It was for them to say whether it supported the imputing. In dealing with the newspaper article written about a public official considerable latitude was allowed by the law. If a gentleman took a position as architect under a School Board he was filling the capacity of a public official, and he must expect criticism. Of course, it was disagreeable to anybody to be criticised, particularly one in Mr. Langlands' position as an architect. The advice he offered to their lordships was this. He read this report and article containing nothing in derogation of Mr. Langlands' private professional conduct as an architect, but purely in his public capacity. He submitted to their lordships that there was nothing in the language to suggest that the *Dundee Advertiser* had attacked Mr. Langlands' private reputation and capacity. He considered that the appeal should be allowed, and the action dismissed, with costs. Lords Kinnear, Parmoor, Shaw, and Wrenbury concurred. The appeal was accordingly allowed, with costs.

**IS A DRAUGHTSMAN A "WORKMAN"?** At the Munitions Court at Canton Hall, Westminster, on Thursday, the Hon. R. Talbot, President, gave his decision on the point raised the day previously, whether a young woman, who had been engaged in tracing in a draughtsman's office, in a controlled establishment, was a "workman" within the meaning of the Munitions Act. Mr. Talbot said that he had come to the conclusion that the work on which the applicant had been engaged was much more akin to clerical work than to manual labour. Therefore she did not come within the Act under section 7, and there was no necessity for a certificate. He added that in the measure just passed by the House of Lords the term "workman" was very clearly defined.

**THE LONDON BUILDING ACTS.**—DISTRICT SURVEYORS' FEES.—At the Tower Bridge Police Court on the 20th instant Mr. Gill gave his decision on a summons for the recovery of District Surveyor's fees in respect of an irregular building or structure that had been removed. The summons was taken out by Mr. Bernard Dicksee, District Surveyor for Newington, against Mr. G. Warren, of 42, Harper Street, New Kent Road, for the recovery of 15s. District Surveyor's fees according to the schedule to the 1894 Act. The case was heard on 13th instant, when evidence was given to the effect that the District Surveyor on March 3, 1915, discovered that an irregular wooden building or structure, covering the whole of the yard in the rear of 42, Harper Street, had been erected by the defendant, without notice to the District Surveyor. As the building was entirely irregular and no approval under Section 82 to the erection of the building or structure had been granted by the London County Council, the District Surveyor had required it to be removed, and as the result the defendant had removed it. An account for the fee was subsequently delivered to defendant. The points that Mr. Gill was specially called upon to decide were whether the District Surveyor was the proper person to cause the irregular building or structure to be removed, and whether the building or structure, having been removed, instead of being amended to comply with the Act, the District Surveyor was entitled to the fee according to the schedule. Mr. Gill took time to consider his judgment, and on the 20th instant decided in favour of the District Surveyor and made an order for the payment of 15s. with 7s. costs.

## TRADE NOTES.

Boyle's latest patent. An Patent. Boyle's latest patent. An Patent. Boyle's latest patent. An Patent.

Boyle's latest patent. An Patent. Boyle's latest patent. An Patent. Boyle's latest patent. An Patent. Boyle's latest patent. An Patent.

## Building Intelligence.

**CALCUTTA.**—The building of the new Royal Exchange in Clive Street was begun in December. A premium was offered by the Bengal Chamber of Commerce for the best design, and Messrs. Stevens, Gregson, and Company, architects, King's Buildings, Bombay, won it in competition with several other leading firms. Mr. John Begg being the assessor. Later tenders were called for the construction of the building, and eventually that submitted by Mr. J. C. Banerjee was accepted. On the ground floor the exchange hall occupies the whole of the centre of the building, and is approached from a lofty entrance loggia facing Clive Street, whilst a subsidiary entrance on the south gives access from China Bazar Street. In this latter entrance is placed the main public staircase and lift for the upper floors. Flanking the entrance from China Bazar Street on either side are placed the Indian brokers' room and the brokers' exchange. On the north side of the exchange hall is the arbitration room and the post office, whilst the members' staircase, with entrances from both these, has also access from the main Clive Street loggia and also the royal exchange hall. A godown and servants' latrines are provided at the rear of the building. On the mezzanine floor, and leading off the members' staircase, are the reading room, restaurant, and kitchen accommodation. A committee room, arbitration room, and office, with retiring rooms, are also planned on the mezzanine floor. The first floor central portion is occupied by the public hall, entered from a crush hall at the head of the main staircase. On the northern side of the building are placed the chamber offices, with accommodation for the secretary and his assistants. On the China Bazar Street side are grouped committee rooms and retiring rooms. The second or top floor is given over to office accommodation. The general motif is Classical, with a Corinthian colonnade on the main front. The building was illustrated in our issue of August 7, 1914.

**CHURCH BUILDING GRANTS.**—At the monthly meeting of the Incorporated Church Building Society, held on Thursday, Lieutenant-Colonel the Hon. G. H. W. Windsor-Clive in the chair, grants of money were made towards building new churches at Cwmbran (St. Gabriel), Llantarnam, £175; and Preston (St. Cuthbert), Lancs, £125. A grant of £20 was also made towards reseating and repairing the church of St. James, Newton, Cambs. Grants were paid for works completed at Shoreditch (St. Michael), £25; Salisbury (St. Mark), £75; and Lambeth (Holy Trinity) £50. In addition to this, the sum of £332 was paid towards the repairs of eighteen churches from trust funds held by the society.

**WESLEYAN CHAPEL AND SCHOOL BUILDING.**—The annual report of Wesleyan Church extension has just been published from the headquarters in Manchester. The report shows that great economy is being used in the matter of church extension. This is especially so in the case of new chapels. In the early years of this century chapels and halls were being built at the rate of over two per week. After the effort of the Twentieth Century Fund had spent itself, this rate was reduced to about thirty a year. During last year only eighteen chapel schemes were undertaken. This is the smallest number in the fifty years' history of the fund. These new buildings will provide additional sitting accommodation for 2,233 worshippers. The total outlay amounts to £99,632, against £247,069—the sum spent in this way the year before. Finally no means represents the whole of the extensions undertaken during the year. Fifteen schools have been separately sanctioned at a cost of £10,155, and 83 cases of enlargement, at a cost of £34,812, have been carried out. Among the new structures recently erected are the new hall built by the Manchester and Salford Mission, at a cost of over £8,000, a new hall at Southall costing £22,000, halls at Glasgow and Hull, and new chapels at Cleveleys, Burnley, Barnsley, and Mansfield.

## PROFESSIONAL AND TRADE SOCIETIES.

**ARCHITECTURAL ASSOCIATION OF IRELAND.**—Belgium: Her Glory and Her Woe, was the subject of a lecture, illustrated with lantern slides, given last Thursday evening by Mr. Harry Alberry, A.R.I.B.A., before the members of the Architectural Association in their rooms, 15, South Frederick Lane.—The lecturer dealt with the notable architectural examples, mediæval and modern, of the cities and larger towns which are at present in the hands of the Germans. Describing the devastating march of the invaders from Liège, through Brussels, to Antwerp, and the noble buildings, and the havoc wrought to them in Louvain, Ghent, Bruges, Malines, Courtrai, and Dinant, until the advance of the enemy was stopped by the artillery of the Belgian, French, and British armies in and around Ypres, the lecturer recounted the history of most of the famous ecclesiastical and civil buildings in the country, and the destruction they had suffered from the guns of the Germans. Many of the lantern slides shown by the lecturer, admirable for their clearness and sharpness of outline, afforded pathetic evidence of the destruction done to Belgium's most celebrated and historical monuments of Classical architecture.—On the motion of Mr. Richard O'Brien Smith, seconded by Mr. George G. Lyles, a vote of thanks was passed to the lecturer.

**ART IN RELATION TO EVERYDAY LIFE.**—At the annual meeting of the Midland Arts Club, held at the Grand Hotel, Birmingham, on Tuesday evening in last week, Mr. J. W. Sulbury, the newly-elected President, delivered an inaugural address, in the course of which he remarked that the claims of business often thrust aside the claims of art. Whether they looked at the innumerable products of Birmingham's handicrafts or at the buildings in which the business of the city was carried on they had too often to confess that, to the multitude of the citizens, art was an "extra" which they did not deem it necessary to consider. Birmingham had none too many public buildings which enhanced its reputation for good taste and artistic instincts, yet opportunities for retrieving its position in that respect were frequently lost. The position was not without gleams of hope, which emanated from the existence of such institutions as that club and the municipal schools of art. He suggested it would be advantageous to return to the name by which the club was known in its chrysalis stage—the Midland Arts Guild. Whatever view they took of that suggestion, they would agree that they were justified in expecting in the future that the association would play a bolder part in the affairs of the city, and become in an increasing measure a power for good in all movements for the uplifting, ennobling, and beautifying of the city of which they were all so proud. The hon. secretary's report, submitted by Mr. Leigh, detailed a large number of gatherings held by the club during the past year. Their activities, he said, had been maintained at a normal level. The membership had increased by four, the total now being 165.

**LIVERPOOL ARCHITECTURAL SOCIETY.**—The sixty-seventh annual report of the Liverpool Architectural Society has as a frontispiece an excellent portrait of the president, Mr. E. Percy Hinde, A.R.I.B.A. The present membership of the society consists of 64 Fellows and 48 Associates, a total of 112. There are also three hon. Fellows, nine hon. Associates, and eight students. A year ago there were 70 Fellows, 59 Associates, three hon. Fellows, nine hon. Associates, and nine students. All ordinary meetings have been suspended since February 1 last year. The statement of accounts is of an encouraging character, there having been a surplus at the close of the financial year of £397 7s. 3d.

**MASTER BUILDERS' ASSOCIATION OF NEWPORT, MON.**—At the annual meeting of this association votes of thanks were passed to the retiring president, Mr. R. W. Moon, and to the vice-president, Mr. Charles R. Shopland. The following officers were elected:—President, Mr. Frederick Leadbeter; vice-president, Mr. E. W. King; hon. treasurer, Mr. W. M. Blackburn; auditors, Messrs. E. W. King and E. C. Jenkins; secretary, Mr.

Richard Richards, who now holds that office for the sixteenth successive year.

**RAPHAEL AND MICHAEL ANGELO.**—At the Royal Institution, Albemarle Street, W., on Saturday afternoon, Mr. C. J. Holmes, Keeper of the National Portrait Gallery, delivered the first of two lectures on Raphael and Michael Angelo. The lecturer observed that Raphael and Michael Angelo provided an illustration of the evolution of the human mind by a process of education. The case of Michael Angelo strongly supported this contention. The process of change was going on all his life. He was in turn sculptor, painter, poet, and architect. Raphael began as a provincial stimulated by the intellectuality of Florence, then moved by the greatest genius of the Renaissance in Rome. This stimulus incited his talent to an extraordinary pitch of efficiency. He became almost omnipotent in the art world. He was architect of St. Peter's, surveyor of antiquities, and was overwhelmed with commissions, under the stress of which he finally succumbed.

**ROYAL DRAWING SOCIETY.**—The Lord Mayor presided on Friday at the annual meeting of the Royal Drawing Society in the Guildhall Art Gallery. Mr. T. R. Ablett, art director and hon. secretary, said the income of the society was nearly £4,600 a year, and in spite of the war the institution was in a good financial position. The examination had surpassed all previous records, as twelve additional schools were examined, making 1,030 schools, presenting a total of 63,820 candidates, who are drawn not only from the British Isles, but also from the colonies and other parts of the Empire. M. Lambotte, directeur des Beaux Arts de Belgique, speaking in French, said that the method of teaching adopted by the Royal Drawing Society ought to produce the best fruits. Sir John Cockburn, in moving the adoption of the report, said that the work of the society was successful because it was conducted on the true lines of Nature. This society did not aim at turning out artists, but at bringing up the youth of the country to have a seeing eye and a sympathetic and helpful hand. Mr. Lewis Solomon, F.R.I.B.A., seconded the motion, which was carried. The Lady Mayoress presented gold stars to the following teachers:—Miss E. Hacker (miniatures), Miss M. Johnson (children's drawings), Miss E. H. Haynes (landscapes), and Miss G. B. Lodge (black and white).

## STATUES AND MEMORIALS.

**JESMOND, NEWCASTLE-ON-TYNE.**—A memorial tablet erected to the memory of Private Albert Edward Lowes, R.I.B.A., Army Service Corps, killed in action in Flanders on April 26, 1915, was formally unveiled by Major-General H. A. K. Montgomery in Jesmond Parish Church, on Saturday afternoon. The tablet was inscribed:—"In memory of Albert Edward Lowes, A.R.I.B.A., of the Northumberland Divisional Train, A.S.C. Born the 26th August, 1883; killed in action at Ypres, 26th April, 1915. A devoted Christian, a skilful architect, a good soldier. *Ars longa, vita brevis.* Erected by his mother." Canon Inskip stated that Mr. Lowes' spare time had been spent as a Territorial, and, joining the A.S.C., he became associated with his old comrades of the 6th Northumberland Fusiliers, going to the front on April 13. In a position of great danger he was giving refreshment to wounded comrades when a shell exploded and he was killed.

**WORCESTER CATHEDRAL.**—Before the opening of the Commission for Worcester City and County Assizes on Thursday Mr. Justice Ivory, by request, unveiled a tablet placed in the north transept of the cathedral in memory of Mrs. Henry Wood, the Worcester novelist. The tablet bears a portrait of the novelist in white marble, executed by Miss Dorothy S. Wise, A.R.A., a deaf and dumb lady, who was also the sculptress of the monument of Bishop Prideaux, placed in the north transept by the Dean and Chapter. The tablet bears the inscription:—"In memory of Mrs. Henry Wood, a native of Worcester; born 1814—died 1887; authoress of many works of fiction which have made this city and Cathedral known throughout the English-speaking world. This memorial was erected in commemoration of the centenary of her birth."



## LATEST PRICES.

N.B.—All prices must be regarded as merely approximate for the present, as our usual sources of information are in many cases failing us.

### TIMBER.

Owing to stoppage of supplies all prices have advanced considerably.

IRON.	Per ton.	Per ton.
Rolled Steel Joists, English.	£14 15 0	to £15 15 0
Compound Girders, Ordinary		
Sections	16 10 0	17 10 0
Wrought-Iron Girder Plates	13 10 0	13 12 6
Steel Girder Plates	13 15 0	13 17 6
Steel Sheets (Single or Double)	11 10 0	—
Steel Strip	10 15 0	—
Basic Bars	11 15 0	—
Bar Iron, good Staffs	13 10 0	13 15 0
Do., Lowmoor, Flat, Round, or Square	24 0 0	—
Do., Staffordshire Crown	14 0 0	14 10 0
Boiler Plates, Iron—		
South Staffs	8 0 0	8 15 0
Best Smedshill	9 0 0	9 10 0
Angles, 10s., Tees 20s. per ton extra.		
Builders' Hoop Iron, for bonding, £13 5s. to £13 15s.		
Do., Ditto galvanised, £20 to £20 10s. per ton.		
Galvanised Corrugated Sheet Iron—		
No. 18 to 20. No. 22 to 24.		
6ft. to 8ft. long, inclusive	Per ton.	Per ton.
gauge	£24 10 0	£25 0 0
Best ditto	25 0 0	25 10 0

Per ton.	Per ton.
Cast-Iron Columns	£12 0 0 to £12 10 0
Cast-Iron Stanchions	12 0 0
Rolled-Iron Fencing Wire	8 15 0
Rolled-Steel Fencing Wire	7 15 0
Galvanised	6 5 0
Cast-Iron Sash Weights	6 1 0
Out Floor Brads	15 0 0
Corrugated Iron, 24 gauge	16 0 0
Galvanised Wire Strand, 7 ply,	
14 B.W.G.	14 5 0
B.B. Drawn Telegraph Wire, Galvanised	
0 to 8	9 10 11 12
£10 10s. £10 15s. £11 0s. £11 5s. £11 15s. per ton.	
Cast-Iron Socket Pipes—	
3 in. diameter	£7 5 0 to £7 12 6
4 in. to 6 in.	7 0 0
7 in. to 24 in. (all sizes)	7 7 6
[Coated with composition, 5s. Od. per ton extra.	
Turned and bored joints, 5s. per ton extra.]	
Ton—	Per ton.
Cold Blast, Lillieshall	137s. 6d. to 142s. 6d.
Hot Blast, ditto	100s. Od. to 107s. Od.
Wrought-Iron Tubes and Fittings—Discount off	
Standard Lists (c.o.b. plus 2½ per cent.)—	
Gas-Tubes	58½ pc.
Water-Tubes	55
Steam-Tubes	51½
Galvanised Gas-Tubes	47½
Galvanised Water-Tubes	45
Galvanised Steam-Tubes	37½

### OTHER METALS.

Per ton.	Per ton.
Lead Water Pipe, Town	£38 0 0 to —
Country	39 0 0
Lead Barrel Pipe, Town	39 0 0
Country	40 0 0
Lead Pipe, tinned inside, Town	40 0 0
Country	41 0 0
Lead Pipe, tinned inside and outside, Town	42 10 0
Country	43 10 0
Composition Gas-Pipe, Town	41 0 0
Country	42 0 0
Lead Soil-pipe (up to 4½ in.) Town	41 0 0
Country	42 0 0
[Over 4½ in. £1 per ton extra.]	
Lead, Common Brands	25 10 0
Lead, 4lb. sheet, English	33 0 0
Lead Sheet, in 28lb. bags	24 15 0
Copper sheets, sheathing & rods	125 0 0
Copper, British Cake and Ingot	112 0 0
Tin, English Ingots	175 10 0
Do., Bars	176 10 0
Pig Lead, Town	33 12 6
Sheet Lead, Town	37 10 0
Country	38 10 0
Genuine White Lead	44 5 0
Refined Red Lead	48 0 0
Sheet Zinc	120 0 0
Old Lead, against account	27 5 0
Tin	10 0 0
Cut nails (per cwt. basis, ordinary brand)	0 18 6
* For 5 cwt. lots and upwards.	

### I BUY

## SCRAP METALS

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### SLATES.

in. in.	£ s. d.	per 1,000 of 1,200 at r. stn.
Blue Portmadoc	20 x 10 x 11 2 6	—
First quality	16 x 10 x 10 12 6	—
Blue Bangor	20 x 10 x 11 5 0	—
First quality	20 x 12 x 11 7 6	—
" "	20 x 10 x 11 0 0	—
" "	20 x 12 x 10 12 6	—
" "	16 x 8 x 5 10 0	—

Eureka unfading green	in. in.	£ s. d.	per 1,000 of 1,200 at r. stn.
" "	20 x 10 x 15 17 6	—	—
" "	20 x 12 x 18 7 6	—	—
" "	18 x 10 x 13 5 0	—	—
" "	16 x 8 x 10 5 0	—	—
Permanent Green	20 x 10 x 11 12 6	—	—
" "	18 x 10 x 9 12 6	—	—
" "	16 x 8 x 6 12 6	—	—

### BRICKS.

(All prices net.)

First Hard Stocks	£2 0 0	per 1,000 alongside, in
Second Hard Stocks	1 16 0	" " " " (river
Mild Stocks	1 14 0	" " " " " "
Picked Stocks for		delivered at
Facings	2 15 0	raily, station.
Flettons	1 16 0	" " " " " "
Pressed Wire Cuts	1 18 0	" " " " " "
Red Wire Cuts	1 14 0	" " " " " "
Best Fareham Red	3 12 0	" " " " " "
Best R.d. Pressed		" " " " " "
Ruabon Facing	5 0 0	" " " " " "
Best Blue Pressed		" " " " " "
Staffordshire	3 15 0	" " " " " "
Ditto Bullnose	4 0 0	" " " " " "
Best Stourbridge Fire		" " " " " "
bricks	4 0 0	" " " " " "
2½ in. Best Red Ac-		Net, delivered in
crinting Plastic	4 10 6	full truck loads
Facing Bricks		in London.

3½" Accrington Best Red Plastic Facing Bricks	£2 10 0
3½" ditto Second Best Plastic ditto	2 2 6
Ditto Ordinary Secondary Bricks	1 11 3
Ditto Plastic Engineering Bricks	1 17 6
Sewer Arch Brick, not more than 3½ in. thickest part.	2 0 0
3½" Chimney Bricks fit for outside work	2 6 0
3½" ditto ditto through and through	2 0 0
3½" Beaded, Ovolo and Bevel Jambes; Octagons; 2½" and 1½" radius Bullnoses; Stock patterns	3 7 6
Accrington Air Bricks, 9" x 2 course deep, each	0 0 6
Ditto ditto 9" x 1 course	0 0 3
Accrington Camber Arches:—	
3 course deep 4½" soffit, per foot opening..	0 1 3
4 " 4½" " " " " " "	0 1 8
5 " 4½" " " " " " "	0 2 1
6 " 4½" " " " " " "	0 2 6
3 " 9" " " " " " "	0 2 1
4 " 9" " " " " " "	0 2 11
5 " 9" " " " " " "	0 3 6
6 " 9" " " " " " "	0 4 6

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White, Ivory, and	Best.
Salt Glazed. Buff, Cream, Other	Second
Best. Seconda. & Bronze. Colours.	Colours.
Stretchers—	
£12 7 6 £11 7 6 £13 17 6 £17 17 6 £12 17 6	
Headers—	
11 17 6 10 17 6 13 7 6 17 7 6 12 7 6	
Quoins, Bullnose, and 4½ in. Flats—	
15 17 6 14 17 6 17 7 6 21 7 6 16 7 6	
Double Stretchers—	
17 17 6 16 17 6 20 17 6 24 7 6 18 7 6	
Double Headers—	
14 17 6 13 17 6 17 17 6 21 7 6 15 7 6	
One side and two ends, square—	
18 17 6 17 17 6 21 17 6 26 7 6 19 7 6	
Two sides and one end, square—	
19 17 6 18 17 6 22 17 6 26 17 6 20 7 6	
Splays and Squints—	
17 7 6 16 7 6 21 17 6 24 17 6 17 17 6	
Plinth and Hollow Bricks, Stretchers and Headers—	
5d. each 4d. each 6d. each 6d. each 5d. each	
Double Bullnose, Round Ends, Bullnose Stops—	
5 1. each 4d. each 6d. each 6d. each 5d. each	
Rounded Internal Angles—	
4d. each 3d. each 5d. each 5d. each 4d. each	

### MOULDED BRICKS.

Stretchers and Headers—	
8d. each 8d. each 8d. each 8d. each 8d. each	
Internal and External Angles—	
1/2 each 1/2 each 1/2 each 1/2 each 1/2 each	
Sill Bullnose, Stretchers, and Headers—	
5d. each 4d. each 6d. each 6d. each 5d. each	
Majolica or Soft Glazed Stretchers and Headers—	
£22 17 6	
Quoins and Bullnose	27 17 6
Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours	ing 9 in.
Camber arch bricks, any kind or colour, by 4 in.	by 2½ in.
Stretchers out for Closers and Nicked Double Headers, £1 per 1,000 extra.	
These prices are carriage paid in full truck loads to London Stations.	s. d.
Thames Sand	7 6 per yard, delivered.
Pit Sand	7 0 " " "
Thames Ballast	6 0 " " "
Best Portland Cement	36 0 s. d. Per ton.
Ground Blue Lias Lime	21 0 s. d. delivered.
Exclusive of charge for sacks.	
Gray Stone Lime	13 6 to 14 0 s. d. per yard.
Stourbridge Fireclay in sacks 27s. Od. per ton at railway station.	

### STONE.

Red Mansfield, in blocks	per foot cube £0 2 4
Darley Dale, ditto	" 0 2 6
Red Corshill, ditto	" 0 2 6
Clovehurst Red Freestone, ditto	" 0 2 2
Ancestor, ditto	" 0 1 11
Greenshill, ditto	" 0 2 04
Beer, ditto	" 0 1 7
Chilmark, ditto (in truck at Nine Elms)	" 0 1 104
Hard York, ditto	" 0 2 0
Do. 6 in. sawn both sides, landings, random sizes.	per foot sup. 0 2 8
Do. 6 in. slab sawn two sides, random sizes.	" 0 1
* All F.O.R. London.	

Bath Stone—Delivered in railway trucks at Westbourne Park, Paddington (G.W.R.), or South Lambeth (G.W.R.), per foot cube	£ s. d.
Delivered in railway trucks at Nine Elms (L. & S.W.R.),	0 1 7½
Delivered on road wagons at Nine Elms Depot	0 1 8½
Portland Stone—Brown Whitbed in random blocks of 20 ft. average, delivered in railway trucks at Westbourne Park (G.W.R.), South Lambeth (G.W.R.), or Nine Elms (L. & S.W.R.),	0 2 5½
Delivered on road wagons at Pimlico Wharf or Nine Elms Depot	0 2
White Basebed—2d. per foot cube extra.	

### TILES.

s. d.	Divrd. at
Plain red roofing tiles	42 0 per 1,000 ry. sq.
Hip and Valley tiles	3 7 per doz.
Broseley tiles	50 0 per 1,000
Ornamental tiles	52 6
Hip and Valley tiles	4 0 per doz.
Ruabon red, brown, or brindled ditto (Edwards)	57 6 per 1,000
Ornamental ditto	60 0
Hip tiles	4 0 per doz.
Valley tiles	3 0
Selected "Perfecta" roofing tiles: Plain tiles (Peake's).	46 0 per 1,000
Ornamental ditto	48 6
Hip tiles	3 104 per doz.
Valley tiles	3 44
"Rosemary" brand plain tiles	48 0 per 1,000
Ornamental tiles	50 0
Hip tiles	4 0 per doz.
Valley tiles	3 8
Staffordshire (Hanley) Reds or brindled tiles	42 6 per 1,000
Hand-made sand-faced	45 0
Hip tiles	4 0 per doz.
Valley tiles	3 6
"Hartshill" brand plain tiles, sand-faced	45 0 per 1,000
Pressed	42 6
Ornamental ditto	47 6
Hip tiles	4 0 per doz.
Valley tiles	3 6

### OILS.

Rapeseed, English pale, per tun	£28 15 0 to £29 5 0
Ditto, brown	26 15 0
Cottonseed, refined	29 0 0
Olive, Spanish	39 10 0
Seal, pale	21 0 0
Cocunut, Cochin	46 0 0
Ditto, Ceylon	42 10 0
Ditto, Mauritius	42 10 0
Palm, Lagos	32 5 0
Ditto, Nut Kernel	35 0 0
Oleine	17 5 0
Sperm	30 0 0
Lubricating, U.S.	per gal. 0 7 0
Petroleum, refined	0 6 6
Tar, Stockholm	per barrel 1 6 0
Ditto, Archangel	0 19 6
Linseed Oil	per gal. 0 4 1
Baltic Oil	0 4 5
Turpentine	0 4 7
Putty (Genuine Linseed Oil)	per cwt. 0 4 10
Pure Linseed Oil	" 0 9 0
"Stority" Brand	" 0 9 0

### GLASS (IN CRATES).

English Sheet Glass	15 oz.	21 oz.	26 oz.	32 oz.
Fourth	6d.	6d.	7d.	7d.
Thirds	5d.	6d.	7d.	8d.
Fluted Sheet	61.	7d.	—	—
Hartley's English Rolled Plate	4 in.	4 in.	4 in.	4 in.
	4d.	4d.	4d.	4d.
Figured Rolled	White.	Tinted.		
Renoussine	4d.	5d.		
Roll Sheet	4d.	—		

### VARNISHES. Etc.

VARNISHES, ETC.		Per gallon.
Fine Pale Oak Varnish		£0 8 6
Pale Copal Oak		0 10 0
Omniscap Copal Oak		0 10 0
Superfine Pale Elastic Oak		0 12 0
Fine Extra Hard Church Oak		0 10 0
Superfine Hard-drying Oak, for seats of churches		0 14 6
Fine Elastic Carriage		0 12 0
Superfine Pale Elastic Carriage		0 16 6
Fine Pale Maple		0 10 0
Finest Pale Durable Copal		0 18 6
Extra Fine French Oil		1 1 9
Eggshell Flating Varnish		0 18 0
White Copal Enamel		1 4 0
Extra Pale Paper		0 12 0
Best Japan Gold Size		0 10 0
Best Black Japan		0 16 9
Oak and Mahogany Stain		0 9 9
Brunswick Black		0 8 0
Berlin Black		0 16 0
Knotting		0 10 0
French and Brush Polish		0 10 0

The twenty-third list of Members, Licentiatees, and students of the R.I.B.A. who have joined the Forces shows a total to date of 53 Fellows, 400 Associates, 205 Licentiatees, and 264 students.

A new Council school has been built near the railway station at Woolcombe from plans by Mr. Percy Morris, A.R.I.B.A., of Exeter, architect to the Devon Education Committee. Messrs. W. Slee and Sons, of Barnstaple, carried out the contract, amounting to about £2,000.



## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Ellingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Drawings of selected competition designs important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc.—we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither harm nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

Telephone: Gerrard 1291.

Telegrams: "Timeserver, Strand, London."

## BACK ISSUES.

Most of the back issues are to be had singly. All back issues over one month old will be charged 6d. each, postage 1d. Subscribers requiring back numbers should order at once, as they soon run out of print.

Handsome Cloth Cases for binding the BUILDING NEWS, price 2s., post free 2s. 5d., can be obtained from any Newsgate, or from the Publisher, Ellingham House, 1, Arundel Street, Strand, W.C.

## TERMS OF SUBSCRIPTION.

One Pound per annum (post free) to any part of the United Kingdom; for the United States, £1 6s. 6d. (or 60s. 30c. gold). To France or Belgium, £1 6s. 6d. (or 33l. 30c.). To India, £1 6s. 6d. To any of the Australian Colonies or New Zealand, to the Cape, the West Indies, or Natal, £1 6s. 6d.

Our Direct Subscription Agents for Australia are Messrs. E. T. Kibblewhite and Co., Printers and Publishers, 19, York Chambers, 105, Liverpool Street, Sydney, New South Wales; for Japan, The Maruzen Co., Ltd., 11-16, Nombashi Tori Sancho-me, Tokyo; who will receive Subscriptions at £1 6s. 6d. per annum on our account. Copies of the paper will be sent by us direct to the subscribers' address.

The special rate to Canada is £1 3s. 10d., 2dols. 80c. for 12 months, and 11s. 11d.=2dols. 90c. six months. Our Direct Subscription Agents for Canada are Messrs. Sells, Ltd., 302, Shaughnessy Buildings, McGill Street, Montreal, who will receive Subscriptions, £1 3s. 10d. per annum, on our account.

Cheques and Post-office Orders to be made payable to THE STRAND NEWSPAPER COMPANY, LIMITED, and crossed London County and Westminster Bank.

## ADVERTISEMENT CHARGES.

The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of Eight Words, the first line counting as two, the minimum charge being 5s. for four lines.

The charge for Auctions, Land Sales, and Miscellaneous and Trade Advertisements (except Situation Advertisements) is 6d. per line of Eight Words (the first line counting as two), the minimum charge being 4s. 6d. for 50 words. Special terms for series of six insertions or more can be ascertained on application to the Publisher.

## SITUATIONS VACANT AND PARTNERSHIPS.

The charge for advertisements for "Situations Vacant" and "Partnerships" is One Shilling for Twenty-four Words, and Sixpence for every Eight Words after. All Situation Advertisements must be prepaid.

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## REPLIES TO ADVERTISEMENTS.

Replies to advertisements can be received at the Office, Ellingham House, 1, Arundel Street, Strand, W.C., free of charge. If to be forwarded under cover to advertiser, an extra charge of Sixpence is made. (See Notice at head of "Situations.")

Advertisements for the current week must reach the office not later than 3 p.m. on Tuesday. Front-page advertisements and alterations or stop orders for serial advertisements must reach the office by first post on Monday to secure attention.

RECEIVED.—L. F. Co., Ltd.—T. P. Co.—W. H. S. and Son.—R. H. S.—J. W. and Son.—C. Q. Co., Ltd.—N. P.—F. L. and Co.—J. M.

P.—Yes.  
N. S. A.—Please send.

ORAL.—We cannot correct other people's mistakes.  
OWNER.—1. The architect is perfectly right. 2. Yes. 3. Only by the contract.

INQUIRY.—The firm is not one we should advise dealings with at the present time.

## FOR

Olivers'

Seasoned

Hardwoods,

APPLY TO—

WM. OLIVER &amp; SONS, Ltd.,

129, Bunhill Row, London, E.C.

## TENDERS.

\* Correspondents would in all cases oblige by giving the addresses of the parties tendering, at any rate, of the accepted tender; it adds to the value of the information.

BEXHILL.—For erection of observation pavilion at the new isolation hospital, for the town council.—Shannon (accepted) .. £757 0 0

BOURNE, LINCOLNSHIRE.—For the supply of road materials, for the Bourne Rural District Council. Accepted tenders:—

Groby Granite Co., 2,100 tons.  
Ellis and Everard (Charnwood granite), 2,100 tons.  
Whitwick Granite Co., 1,000 tons.  
Hobwell Iron Co., 1,500 tons of slag.  
(Total value of accepted tenders, £7,400, an advance of £700 on last year's contracts.)

CAPE TOWN.—For the supply of a turbo-alternator and rotary converter, for the town council. Accepted tenders:—

British Thomson-Houston turbo-alternator:—  
South African General Electric Co. .. £12,130 0 0  
Rotary converter:—  
Sykes and Co. .. 3,050 0 0

CEPRAR.—For improvements to man-e. Accepted tenders:—

Mason work:—Finlay, R. G.  
Joiner work:—Dunne, G.  
Plumber and gas-fitter work:—Bett, J.

DUBLIN.—For remodelling No. 6, Upper Ormonde Quay:—

Finlay, James, Thomas Street, Dublin (accepted).  
Extra.—For the supply of a motor fire-engine, for the fire brigade committee of the urban district council:—

Dennis Brothers, Ltd. .... £875 0 0  
(Recommended for acceptance.)

FULHAM, S.W.—For works of painting at Star Lane School, Fulham (now being remodelled under a contract taken by W. E. Blake, Ltd.), for the London County Council:—

Boys, Ltd., Upper Berkeley Street .. £1,125 0 0  
McCormick and Sons, Ltd., Islington .. 1,082 0 0  
Maxwell Bros., Ltd., Brixton Road .. 998 0 0  
Bowler, J. and Co., Ltd., Upper Norwood .. 916 0 0  
Garrett J., and Son, Balham Hill .. 829 0 0  
Smith, W., and Son, Harleyford Road .. 790 0 0  
Blake, W. E., Ltd., Stevenage Road, Fulham .. 680 0 0  
Jons, A. H., Camomile Street, Bishopsgate .. 669 6 9  
Triggs and Co., 92, The Chase, Clapham (accepted) .. 652 0 0  
(Architect's estimate, £755.)

GREAT YARMOUTH.—For reslating the roof of the central fish market, for the Yarmouth Port and Haven Commissioners:—

Carter and Wright (accepted) .. £150 0 0

GREENOCK.—For the erection of cottages for workmen, for the corporation:—

West of Scotland Building Co. (accepted).  
GRIMSBY.—For the construction and provision of furniture at the engine and surveyor's office, Deansgate, Grimsby, for the Deansgate Rural District Council:—

Smith, R. W. .. £57 11 10  
Holmes, M., and Co., Ltd. .. 17 5 0  
Imperial Cabinet Co. .. 45 0 11  
Smith, D. (accepted) .. 41 10 0  
All of Grimsby.

HALIFAX.—For supply and fixing of a boiler at Salford-able Council School, for the education committee. Mr. J. Lord, M.I.C.E., borough engineer:—

Pollard, A., Old Cock Yard, Halifax (accepted).

LONDON.—Accepted tenders for various works, for the London Education Committee:—  
Hammersmith-Thornfield Road electric light (102):—

Whitaker, L., and Sons .. £420 11 0  
Finsbury, C., Winchester Street, painting .. 241 10 0  
Finsbury, C., Winchester Street, electric light (102):—

Naper Kimber, Ltd. .. 109 11 0  
Hammersmith Ebershe Road improvement of heating .. 96 0 0  
Clapham Home for little boys: emergency stair case:—  
Triggs and Co. .. 52 0 0

LONDON.—For the execution of work under the jobbing schedule in districts 8, 9, and 14, for the London County Council:—  
Bowler, J. and Co., Ltd. (accepted as per schedule). (In lieu of tender from Willmott, J., and Sons, withdrawn.)

NEWCASTLE.—For the supply and erection of boiler plant, for the electric supply committee:—

British Thomson-Houston, Ltd., 171, R. 1, Rugby .. £71 0 0  
(Recommended for acceptance.)

SHREVE.—For the erection of temporary dwellings for munition workers, on sites near Peter Street at Tinsley and near Tyer Street at B. 2, side, to consist partly of houses and partly of hostels and colony blocks, and estimated to cost £400,000, for the city council. Accepted tenders:—

Cowleson, F. D., & Co., Glasgow .. £50,590 0 0  
Walker, F. T., Sheffield .. 49,047 0 0  
Costain, R., and Sons, Liverpool .. 47,084 0 0  
Dawson and Jones, Sheffield .. 41,945 0 0

STRETHED.—For supplies, for the urban district council. Accepted tenders:—

400 yards of paper-insulated, lead-covered cable, 100 ft. long, for the urban district council:—  
Glover, W. T., and Co., .. £50 0 0  
De H.P. motor:—  
Veritas, Ltd. .. 5 0 0

WINDSOR.—For the supply of an electric pump, for the town council:—  
Pulsmore Pump Co., Ltd. Gae. (accepted, about .. £200 0 0

WORTHING.—For the supply of 1,500 tons of Welsh granite, for the town council:—  
Johnston Brothers (accepted), 16s. 11d. per ton.

## LIST OF TENDERS OPEN.

## BUILDINGS.

Jan. 26.—Extensions to Refuse Destructor, Cavendish Street, Barrow-in-Furness.—For the Corporation.—The Borough Engineer, Barrow-in-Furness.

Jan. 29.—Six Lock-up Shops and Stores, Mare Street, Beckeney, N.E.—G. P. Pratt, A.R.I.B.A., 174, High Street, Acton, W.

Jan. 31.—Alterations and Repairs to Farm Buildings, Whitlocksworthy, South Milton, near Kingsbridge.—Bourne and Sons, Land Agents, Totnes, Devon.

Jan. 31.—Alterations, Sanitary Fittings and Other Works, Southwark Military Hospital, Dulwich Grove, Dulwich, S.E. For the Southwark Union Guardians.—A. Saxon Snell, F.R.I.B.A., 9, Bentinck Street, Manchester Square, W.

Feb. 1.—Buck Chimney Shaft, at Fane Valley Creamery, Altnamackin, Mr. J. M'Neil, Manager, The Creamery, Altnamackin, Castleblaney.

Feb. 2.—Alterations, and Additions at Sanatorium, Canton, Cardiff.—For the Cardiff City Council.—The City Engineer, City Hall, Cardiff.

Feb. 12.—School Building (about £3,000), Vallmoll, Spain. The Municipal Authorities, Vallmoll, Spain.

## ELECTRICAL.

Jan. 26.—Telephone Instruments and Galvanised Iron Wire, Brisbane, Queensland.—For the Deputy Postmaster-General.—The Commercial Intelligence Branch, Board of Trade, 73, Basinghall Street, E.C.

Jan. 26.—Electric Power Plant, Naval Arsenal, Cadix.—Negociado Quinto de la Segunda Arsenel del Estado Mayor Central de la Armada, Ministerio de Marina.

Jan. 31.—Three Freight Car Transfers, Sydney, N.S.W.—For the Harbour Trust Commissioners.—The Commercial Intelligence Branch, Board of Trade, 73, Basinghall Street, E.C.

Feb. 1.—Indianrubber-covered Wire (58 miles), Melbourne.—For the Deputy Postmaster-General.—The High Commissioner for the Australian Commonwealth, 72, Victoria Street, Westminster, S.W.

Feb. 1.—Street Cars and Copper Cables for Street Car Work, Toronto.—For the Board of Control, City Hall.—The Works Department, Room 12, City Hall, Toronto, Canada.

Feb. 2.—Fuse Distribution Boxes, Victoria, Australia.—John Coates and Co., Ltd., Consulting Engineers, 115, Victoria Street, S.W.

Feb. 7.—Lighting Installation, Brynmill Infants School, Swansea.—For the Education Committee.—A. W. Holden, Clerk, Education Department, 9, Grove Place, Swansea.

Feb. 11.—Pipe Line and Accessories, Lake Coleridge Electric Power Scheme, Wellington, New Zealand.—For the Public Works Office, The High Commissioner for New Zealand, 13, Victoria Street, Westminster, S.W.

Feb. 16.—Electric Staff Instruments (large and miniature type), Melbourne.—For the Victorian Railway Commissioners.—The Commercial Intelligence Branch, Board of Trade, 73, Basinghall Street, E.C.

Feb. 18.—Material, Colburg, Australia.—For the Melbourne, Brunswick, and Colburg Tramway Trust, The Melbourne, Brunswick and Colburg Tramways Trust, Colburg, Victoria.

Feb. 23.—Commutator slotting Machine, Melbourne.—For the Victorian Railway Commissioners.—The Commercial Intelligence Branch, Board of Trade, 73, Basinghall Street, E.C.

Feb. 23.—Receiver and Wheatstone Instruments, Brisbane.—For the Postmaster-General's Department.—The Commonwealth Office, 72, Victoria Street, Westminster, S.W.

Feb. 28.—Power Plant, Port Oph., Tairāwhiti, Queensland.—For the British Postmaster-General.—The High Commissioner for the Australian Commonwealth, 72, Victoria Street, Westminster, S.W.

March 8.—Generator (3,000 kw. and Water Turbine 1,500 h.p.), Lyttelton, New Zealand.—For the Public Works Office, Wellington.—The High Commissioner for New Zealand, 13, Victoria Street, Westminster, S.W.

# THE "BUILDING NEWS" ADVERTISERS

The number indicates the page in this issue on which the Advertisement will be found; where a dash (—) appears it denotes that Advertisement does not appear in this issue.

Allday, Ltd. ....	—	Darbishire, W. A. ....	—	Kerner-Greenwood and Co. ....	—	Ratner Safe Co. ....	—
Alliance Assurance Company, Ltd. ....	—	Dawmay, A. D., and Sons, Ltd. ....	viii	Kibblawhite, E. T., and Co. ....	iii	Ripolin, Ltd. ....	—
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Anglo-Sicilian Asphalte Co., Ltd., The ..	—	Doulton and Co., Ltd. ....	—	—	—	"Ronuk," Ltd. ....	—
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## STRONG ROOM DOORS

Fire Resisting.

Quality No. 37.

SIZES:

6ft. by 2ft.	6ft. by 2ft. 6in.	6ft. by 3ft.
£12 15 0	£14 0 0	£15 15 0

Fire & Thief Resisting.

Quality No. 32.

£19 5 0	£21 0 0	£22 18 0
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Oxford Street, BIRMINGHAM.

GODLIMAN HOUSE,  
GODLIMAN STREET, LONDON, E.C.

Quality No. 32.



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

Effingham House,

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### OUR ILLUSTRATION

A County Hall in the Palace, Shropshire, by Sir Ernest George, A.R.A., and A. F. R. B.A., Architects.  
 "Pondor," Royal Academy, Silver Medal, 1905, for a group of figures, Second Prize, 1906, for "Caroline Hall."  
 Details of Girdlington Priory, Yorkshire, Modelled and drawn by Mr. Gordon Hemm.  
 Aids to Architects' Work, by Anketell Henderson (P.P.), M.C.E., Lecturer in Architecture, University of Melbourne.

### THE NEW BLOCKADE.

Unable or unwilling effectually to seal enemy ports and those of neutrals supposed to be favouring the enemy, the Government seems to have arrived at the conclusion that the right thing to do is to blockade our own against the ingress of necessary imports. In our Parliamentary Notes on another page will be found a report of Mr. Walter Runciman's replies in the House of Commons last Thursday embodying the determination to which the Government has come to restrict imports of bulky materials, such as paper pulp, paper of all kinds, including wall-papers, building materials, fruit, and raw tobacco. The object aimed at is alleged to be the setting free of ships for the carriage of foodstuffs, fuel, and other necessary supplies. We hear from a reliable source that some fifty or sixty ships will be thus liberated. We believe there are many more German ships interned in our ports, and we fail to understand why they have not been appropriated to our needs and manned with British sailors to supply our deficiencies. We are told that the import of other articles will be restricted if necessity compels.

The policy seems to us a futile and unnecessary one. Not long since Mr. Runciman demonstrated beyond contradiction, as we thought, that it was practically impossible for the Board of Trade to decide what ships should take particular routes, what freights they should carry, and what rates they should be allowed to charge. How he has been led to change his views we do not know. What we are sure of is that he will never persuade the victims of individual industries that they are not going to be penalised for the benefit of more favoured or more lucky ones. We of the building trades have felt this for nearly seven years past, and now Mr. Runciman is going to add the scorpions to the whips wherewith Mr. Lloyd George chastised us. Once more builders are going to be taxed over and beyond their fellow citizens by the exclusion of building materials, including wall-papers. This time a scarcely less numerous interest—that of the newspaper Press generally—is to be included, and all its appeals seem likely to be in vain.

Early last week Mr. Runciman invited the representatives of the daily Press to meet him with the view to arrive at some understanding with regard to the compulsory limitation of size to which it is proposed to restrict all journals. We hear that the limit suggested was "50 per cent. less than as in 1913." No such invitation seems to have been extended to the weekly Press, including the professional and trade papers, and the result was a meet-

ing last week, at which it was determined to approach Mr. Runciman on their behalf, and the following letter was sent to him:—

#### LIMITATION OF PAPER SUPPLIES.

Sir,—We have the honour to point out that the committee appointed yesterday afternoon, at your suggestion, to confer with you on the limitation of paper supplies does not include any member of the technical or trade Press. The only member, as far as we can ascertain, not representing the daily Press is Mr. Diblee, of the *Fibre* and the *Queen*. Under these circumstances, we venture to call your attention to the following facts:—

1. While the daily newspapers can curtail their circulation by stopping "returns" and reducing the size and number of editions if necessary, such a course is not open to trade and technical journals, as some have no "returns," and with most of the others the percentage of "returns" is very small in number comparatively.

2. A very large proportion of the circulation of technical and trade journals is by annual subscription in advance and consequently cannot be reduced.

3. Our advertisements, which are only addressed to traders, are contracted for a long period ahead at series rates to appear on specified dates, and, therefore, cannot be omitted.

4. Under Post Office regulations, we are compelled to give a certain proportion of literary matter to advertisements, so as to be entitled to the newspaper postage rate. This rate, we may remark, has only lately been very heavily increased, and the burden has fallen almost entirely on technical and trade journals, the daily papers being hardly at all affected thereby.

5. It is of the utmost importance for the welfare of the country in these difficult times that the trade and technical Press should be as little hampered as possible, as these publications not only help the home trader, but induce export trade as well by their foreign circulations, which are often of a very substantial character.

It will be seen from the foregoing that we cannot reduce the size of our papers without breaking contracts with our advertisers and rendering ourselves liable to heavy damages, and that, generally, the conditions under which these properties are conducted are entirely different to those of the general daily Press.

As our position is such a difficult and special one, we would respectfully request that a small deputation be received by you to enable us to explain matters further.

We are,  
 Yours obedient servants,

Signed by proprietors of

IRONMONGER.	ENGINEERING.
CHEMIST AND DRUG.	IRON AND COAL.
GIST.	TRADES' REVIEW.
DRAPERS' RECORD.	GROCER.
MEN'S WEAR.	CABINET MAKER.
ELECTRICAL REVIEW.	HARDWARE TRADE.
JANSEL.	JOURNAL.
BUILDER.	JOURNAL OF GAS.
BUILDING NEWS.	LIGHTING.
ENGLISH MECHANIC.	GAS WORLD.
ENGINEER.	

At the moment of writing we do not know what reply has been vouchsafed to that letter; as far as we ourselves are concerned, our readers know that we have kept this journal intact since the war

begin, solely limiting our size by the diminution of the pages occupied by advertisements and the consequent serious diminution of our receipts, notwithstanding five successive heavy rises in the price of paper and a serious increase in the cost of printing. That, of course, has meant serious loss, but we have endured that in the confident expectation of better days.

Now it appears that we are likely to be compulsorily limited as regards the size of our paper, or its bulk. Concurrently we are sure that the price of paper will be again heavily advanced, and that while the war lasts advertisers will not increase. Some advertisers have told us lately that we ought to reduce our rates, as other papers have done. We wish that had been possible. It probably is in the case of journals of small circulation, where the paper bill is a comparatively small item of outlay; it is not where the reverse is the case, and the space-rate value of an advertisement increases more and more against the newspaper proprietor as the price of paper goes up. We indeed hope, as hitherto, not to increase our advertisement rates—at any rate, to prevent advertisers, but we cannot be sure about that.

Of our readers we ask in advance their indulgence, if—altogether against our will—we are compelled to reduce our size or the number of our illustrations, or the quality of our paper. We see no need for it, and we know, as we have said, that any such "saving" will only mean additional cost and loss to us. We can only regret that once again we are not the only victims; but that, together with ourselves, the great industry we represent has been selected to bear additional burdens, which a business-like Government would have apportioned more justly.

### AIDS TO ARCHITECTS' WORK

By ANKETELL HENDERSON (P.P.), M.C.E.,  
 Lecturer in Architecture, University of Melbourne.

Architects' work, like the work of most others, consists of two factors—originality and routine; the original being a source of pleasure, and the routine habitually tedious, because of its constant repetition and, therefore, want of interest. My object in this is to show how to simplify the original and make it a source of interest, and to reduce the time taken by it. Many of the illustrations exhibited to night have been finished before, but they have not been published for thirty-five years. The first of these is a plan publication, was published in 1880, and the second, a section, in 1881. One of the series of illustrations is a plan of a series of hypocausts, published in 1881, and the third, a section, in 1881. The fourth, a plan, has not been published for thirty-five years, and the fifth, a section, has not been published for thirty-five years. The sixth, a plan, has not been published for thirty-five years, and the seventh, a section, has not been published for thirty-five years. The eighth, a plan, has not been published for thirty-five years, and the ninth, a section, has not been published for thirty-five years. The tenth, a plan, has not been published for thirty-five years, and the eleventh, a section, has not been published for thirty-five years. The twelfth, a plan, has not been published for thirty-five years, and the thirteenth, a section, has not been published for thirty-five years. The fourteenth, a plan, has not been published for thirty-five years, and the fifteenth, a section, has not been published for thirty-five years. The sixteenth, a plan, has not been published for thirty-five years, and the seventeenth, a section, has not been published for thirty-five years. The eighteenth, a plan, has not been published for thirty-five years, and the nineteenth, a section, has not been published for thirty-five years. The twentieth, a plan, has not been published for thirty-five years, and the twenty-first, a section, has not been published for thirty-five years. The twenty-second, a plan, has not been published for thirty-five years, and the twenty-third, a section, has not been published for thirty-five years. The twenty-fourth, a plan, has not been published for thirty-five years, and the twenty-fifth, a section, has not been published for thirty-five years. The twenty-sixth, a plan, has not been published for thirty-five years, and the twenty-seventh, a section, has not been published for thirty-five years. The twenty-eighth, a plan, has not been published for thirty-five years, and the twenty-ninth, a section, has not been published for thirty-five years. The thirtieth, a plan, has not been published for thirty-five years, and the thirty-first, a section, has not been published for thirty-five years. The thirty-second, a plan, has not been published for thirty-five years, and the thirty-third, a section, has not been published for thirty-five years. The thirty-fourth, a plan, has not been published for thirty-five years, and the thirty-fifth, a section, has not been published for thirty-five years. The thirty-sixth, a plan, has not been published for thirty-five years, and the thirty-seventh, a section, has not been published for thirty-five years. The thirty-eighth, a plan, has not been published for thirty-five years, and the thirty-ninth, a section, has not been published for thirty-five years. The fortieth, a plan, has not been published for thirty-five years, and the forty-first, a section, has not been published for thirty-five years. 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The seventy-eighth, a plan, has not been published for thirty-five years, and the seventy-ninth, a section, has not been published for thirty-five years. The eightieth, a plan, has not been published for thirty-five years, and the eighty-first, a section, has not been published for thirty-five years. The eighty-second, a plan, has not been published for thirty-five years, and the eighty-third, a section, has not been published for thirty-five years. The eighty-fourth, a plan, has not been published for thirty-five years, and the eighty-fifth, a section, has not been published for thirty-five years. The eighty-sixth, a plan, has not been published for thirty-five years, and the eighty-seventh, a section, has not been published for thirty-five years. The eighty-eighth, a plan, has not been published for thirty-five years, and the eighty-ninth, a section, has not been published for thirty-five years. The ninetieth, a plan, has not been published for thirty-five years, and the ninety-first, a section, has not been published for thirty-five years. The ninety-second, a plan, has not been published for thirty-five years, and the ninety-third, a section, has not been published for thirty-five years. The ninety-fourth, a plan, has not been published for thirty-five years, and the ninety-fifth, a section, has not been published for thirty-five years. The ninety-sixth, a plan, has not been published for thirty-five years, and the ninety-seventh, a section, has not been published for thirty-five years. The ninety-eighth, a plan, has not been published for thirty-five years, and the ninety-ninth, a section, has not been published for thirty-five years. The hundredth, a plan, has not been published for thirty-five years, and the hundred-first, a section, has not been published for thirty-five years.

From the "Journal of Proceedings of the Royal Victoria Institute of Architects," November, 1915.

horizontal dividing engine and a special radial cutter, and both have been designed lately. What I propose to show and explain to-night is, first, scales:—

#### SCALES.

- A.—The drawing scale I registered in England in 1881, which one of the leading building journals in England considered at that time to be about twenty-five years before the time. That scale can be manufactured here now at a fairly low cost and is quite up-to-date.
- B.—A transparent scale which can be laid upon a plan and will give the area of every rectangular room, etc., by simple inspection. I will call this the "area" scale.
- C.—A similarly transparent scale which, when laid upon a plan, will give the girth of every such room, etc., by simple inspection. This I will call the "girth" scale.
- D.—A scale by which lengths ticked from plans on to slips of paper, or measured with a fine string, can be converted to square area by simple inspection by laying it on the proper line of height. This I will call the "quantity" scale.
- E.—A simply-made scale for measuring lengths, widths, and heights from any photograph of a building taken approximately at right-angles to the face, provided some dimension of the building is known. This I will call the "photograph" scale.

*Drawing Scale A.* Scales are usually made of boxwood, ivory, cardboard, or metal, and divided so that there is a zero at each end, the numbers increasing from each end. In setting out a dimension with the ordinary scale, the zero is placed opposite the starting point and a pencil or prick is used to mark the required distance on the paper. In setting the zero to the starting point, the eye must be perpendicularly above the zero, and then head and eye must be moved to mark off the required dimension correctly. Two operations are thus necessary, in either of which error may occur. My improvement consists of a steel point fixed to the scale, and, by merely moving the scale until the required distance is opposite the starting point, and raising the back of the scale, the steel point marks the required distance on the paper and no second movement of the eye or head is needed. The accuracy obtained by this method is very great, and, one operation only being necessary, time is saved. The arrangement of the scale is also different from the ordinary. Instead of zero points at each end, they are, in my scale, placed at 10 ft. from each end, greater rapidity thus being gained for working on each side of centre lines. This arrangement was adopted after considerable time in experimenting with different forms and arrangements, and for general work the present arrangement has been found perfect for thirty-five years. The new scale has 50 ft. between the zero points, instead of forty, as shown in the illustrations. The setting out of joists, rafters, studding, and timber to the proper centres is performed by a scale on the back. This is not new, but a novel use is made of this scale, which I will explain hereafter. Each of the larger dimensions on the scale is 16 in., and the smaller 8 in. In making out drawings, it is often necessary to lay down series of odd and fractional dimensions, such as width of stair treads, 11 in.,  $10\frac{3}{8}$  in., 9 $\frac{1}{2}$  in., etc.; courses of bricks, 4 courses to  $13\frac{1}{2}$  in.,  $13\frac{1}{2}$  in., or 13 in.; patterns of tiles, running 6 $\frac{1}{2}$  in., 9 $\frac{1}{4}$  in.,  $10\frac{1}{2}$  in., etc.; centres of palisading, 5 in. All this is done by a simple arrangement, which I call a "reducing arc," on each side of the scale, and by this are dimensions from 12 in. to 3 in., running in sixteenths, may be set off on the front of the scale, and from 8 in. to 5 in., running in sixteenths, on the back of the scale. By using the 8 in. division on the back, as well as the 12 in. on the front, an unworkable angle is avoided. Dimensions from 12 in. to 3 in. are drawn by setting the scale so that the zero point and the required dimensions on the reducing arc are on the line to be

divided; and dimensions from 8 in. to 5 in. are drawn by setting the zero and the required dimension on the reducing arc on a line at right angles and then marking off with a pencil from the scale, or, still more rapidly, by drawing a line along the scale on the paper and using the proper toothed end for marking the divisions. The rapidity and ease with which difficult series of dimensions can be set out is very great. The scale also saves a number of minor calculations. The number of  $6\frac{1}{2}$  in. risers or other risers necessary to go from one floor of a building to another can be ascertained by inspection, and the number of  $10\frac{1}{2}$  in. or other size treads that can be fitted into the stairs hall equally quickly. The coursing of stonework to bond with brickwork, as in warehouses, etc., is equally rapidly done; also ornamental brickwork. The toothed ends being divided to 12 in. and 8 in., are useful for setting out weatherboards and lining boards to 6 in. and 4 in. widths respectively. On the upper side of the scale is a diagram by which the widths of gutters falling  $\frac{1}{2}$  in. in 10 ft., and on slopes of 20°, 30°, 40°, 50°, may be obtained instantly, opposite to the lengths of the gutters. Where  $\frac{1}{2}$  in. drips are used, the length of the gutter must be taken as 10 ft. additional for each drip. This gutter-board, as it is called now, I introduced over forty years ago. Standard dimensions, such as widths and heights of stock doors, fireplaces, jambs, flues, and divisions occupy a space on the back top edge; also the common dimensions 3 ft. 3 in., 3 ft. 6 in., fireplace 3 ft. wide, with  $13\frac{1}{2}$  in., 18 in., and  $22\frac{1}{2}$  in. jambs, and 18 in. of hearth, is drawn on the same set of lines. The 3 ft. space shows the usual arrangements of door panels as seen in elevation, and on the right-hand side the usual heights of the rails are shown; the left-hand end gives a series of 9 in. flues and  $\frac{1}{2}$  in. divisions, useful in setting out double, triple, multiple chimneys by simple inspection, instead of the usual adding together of small dimensions. All the dimensions on this part of the scale being set out equidistant from the centre, fireplaces, etc., can be drawn central in the rooms without drawing centre lines, as shown on Fig. 4. I may note in passing that this is the only part of the scale which requires a pencil for marking off, and that the lines are so arranged that marking off is done from the scale towards the draftsman, when in a horizontal, and from the scale towards the right when in a vertical position, both of them being the most rapid methods of setting off. The scale of 8 in. dimensions being 1-12th of an inch, forms a scale of inches to an inch scale for drawing small details to explain the other drawings; and it is also extremely useful for preparing preliminary sketches, as the usual  $\frac{1}{4}$  in. scale is too large, and 1-16th in. too small. Figs. 1 and 2 show the upper and under side of the scales. Fig. 3 shows its application to setting out heights of a staircase. Fig. 4 shows application to plan of staircase, plan of chimney, and laying out of tiles. Fig. 5 shows application to course of bricks and multiple chimneys. Fig. 6 shows its use as a scale for details. Only one precaution is necessary—namely, to take the paper out of the drawer and expose it to the air for some hours before using it, otherwise the shrinkage will prove troublesome. Setting out with this scale is so accurate that adding may be accomplished by it. Our old fellow-member, Mr. William Salway, who was a rapid and fine draftsman, saw me a few days before his death, and informed me that my claim that the scale saved twenty minutes in each hour's drawing was under the mark.

*Scale B: "Area" Scale.*—This is a transparent scale, printed on tracing cloth. It consists of a series of hyperbolas enclosed by rectangular asymptotes, the property of which is that the product of the ordinate and abscissa is constant. These hyperbolas are described so that these products represent graded areas, and, commencing at 5 square feet, they progress to over 2,000. By laying the scale so that the zero lines correspond with two walls, the diagonally-opposite corner will be found on one of the hyper-

bolas, or intermediate between two, and so give the area by inspection. An architect sitting at his table can just measure the area of apartments and dictate them to a clerk (see Fig. 7).

*Scale C: "Girth" Scale.* consists of straight lines drawn at angles of 45° to zero lines drawn at right angles, and is based on the principle that the sum of the ordinate and abscissa to such lines is constant. These straight lines are drawn so that the sums represent graded lengths from 10 ft. By laying this scale so that the zero lines coincide with two walls of a room, the opposite corner will coincide with one of the lines, or be intermediate between two lines, and this will give the girth of the room by inspection. If there is a projecting fireplace, or pier, you simply have to add twice the projection to the total. The results can be similarly dictated, and will give lengths of cornices and skirtings, and also, multiplied by the height, will give the plastering of the rooms (see Fig. 8).

*Scale D: "Quantity" Scale.* is printed upon stout cardboard, and is to a scale of  $\frac{1}{8}$  in. horizontally and a larger scale vertically. The curves are modified hyperbolas, and the method of use is as follows:—By ticking off, say, all the 9-in. walls of similar height from a plan upon a slip of paper, or by measuring these walls with a fine string, you arrive at the total length. By laying the slip or string of that total length on the line corresponding with the height, you obtain the area of those walls by inspection. Similarly, you can take off the  $\frac{1}{2}$ -in. walls and the  $13\frac{1}{2}$ -in. walls. The deduction for windows and door openings can be similarly ticked off and laid on the line of average height of the openings. I generally enter such brickwork dimensions in two columns—namely, half-brick and one-brick. By halving the half-brick dimensions, and adding to the one-brick dimensions, and dividing by 408, the number of rods is obtained. It is possible to take off brickwork of a £2,000 house with this scale in ten minutes to a quarter of an hour (see Fig. 9).

*Scale E: "Photograph" Scale.* is as simple to make as the girth scale, and is also useful for measuring from illustrations in a book. Lay a scale, say  $\frac{1}{8}$  in. to a foot, at one end of a half-sheet of stout foolscap (preferably ruled). To a point in the middle of the other end drawing radiating lines, making every tenth line heavy. At each ruled line across the paper this will be a separate scale, with intermediate scales between the lines. Fold the scale at the line on which the width of the photograph corresponds with the measured dimensions. If the photograph be very slightly in perspective, make the fold oblique instead of square. No office should be without one of these simple radial scales, which can be converted to any scale by simply folding. A plan drawn to chains and links can be read in feet and inches by folding at the right place (see Fig. 10). For photographic measurements most hand cameras have lenses of too long focus for using in confined situations. A good anastigmat of focus equal to the length of the plate or film, or a fraction more, and working up to F.6 aperture, and a shutter working to 1-10th second, will enable work to be measured, in most places, up till sunset. A film pack is flat enough for accurate work, and lighter than plates, and, further, you can develop one or more films as you use them without waiting until the pack is finished. Such a camera, with a large finder, was made for me by Butcher, of London, eighteen months ago, and is my constant companion when measuring. Of course, enlarging the photos to proper scale of  $\frac{1}{8}$  in. or  $\frac{1}{4}$  in. is even better than a measuring scale if you have the apparatus. If the rising front of the camera is not used, and the vertical lines of the photograph are converging, fold separate scales for the bottom of the building and for the top; and, if the discrepancy is great, one for intermediate divisions, and use these for measuring heights also. If you have no rising front to your camera, be careful to take one good height dimension.

#### PORTABLE LEVEL, ETC.

When inspecting defective buildings in the country, proper levels often form the crux

of the problem, and the lightest ordinary level and staff and legs weigh pounds, besides being unwieldy for travelling. I tried Abney levels, but they were not accurate enough for drainage. I, therefore, designed the level and staff shown, and mount the former on a very light photographic stand. The total weight of the kit, including the box, is 4 lbs. 4 oz. The telescope is 6 in. long, with the usual cross wires and eye-piece, and, being so short and of small diameter, it has good depth of focus, and no focussing is required unless the staff is very near. At the side of the telescope is a good spirit level with usual screws for adjustment. The telescope and level are mounted on gimbals, and kept level by a brick or other weight suspended by a cord attached to the vertical axis on which the telescope revolves. The level was put on to detect jamming of the gimbals, which might, and did, take place occasionally in difficult, hilly places. At one recent inspection, the wind was blowing a heavy gale, and I used about 20 lbs. weight of old iron to keep the level steady and vertical; while, on another occasion, I could only get a brick, which I suspended in a bucket of water to keep it steady. The staff is of hickory or ash, 1½ in. by 3-16th in., with folding joints and spring clips. The top of each foot is indicated by red figures 2 in. in height, and alternate inches by black figures 1 in. in height. I have found 8 ft. a convenient height. The back is numbered the reverse way, and I often take levels upwards from the floors, and downwards from the ceilings or architectural features in similar manner. In addition to its use for levelling, this staff is the most convenient rod for measuring that I know of, as it folds to 1½ in. by 1¾ in. by 17 in. long, and weighs only 15 oz. Level and staff are shown in Fig. 11. Only two adjustments are necessary for the level, one to set the spirit level at right-angles to the axis so that it will centre, and the other to adjust the line of collimation parallel to the level, and also at right-angles to the axis. I often check the latter adjustment on the floor of a very long passage that I know to be level. As to level book, I advise only four columns:—(1) Collimation or instrument level; (2) foresight; (3) reduced level; (4) back sight. No. 4 added to No. 3 gives No. 1; and No. 2 deducted from No. 1 gives No. 3. If there has been only one set-up of the instrument, the collimation level can be lightly drawn on the elevations and sections, and the readings measured down from that line to give the correct levels without troubling with a datum or reduced levels.

## BOOK-KEEPING, ETC.

This, I am afraid, is a rather neglected part of the routine in some offices. As an architect is practically a trustee in a contract, every care is required in relation to certificates and his clients' accounts. Certificates and their butts are generally bound into books containing fifty or more, and the loss of time and annoyance in looking up back numbers is often great. This is saved and chance of error reduced by printing them on separate sheets (two sheets and butts to the sheet of foolscap) and binding them in with the contract and conditions and specifications. In addition to this a certificate book should be kept for reference and for entering amounts and general particulars of accounts that are certified as correct without giving formal certificates. For this purpose a three-column book will do, and I show a sample. My advice is to keep a separate page for each ordinary client, and do not try to save paper; also allot several successive pages for regular clients, and so keep their records together.

## LEDGER.

For very many years my firm has found it useful to copy into our ledger the main items of contracts, so as to indicate those upon which each commission is charged. This means a four-column book, of which I show sample. The first column gives contract amounts only, and the second items of charges and commissions as they occur. Column three gives the account rendered, and column four the receipts. The totals of columns two and three should agree, and

CERTIFICATE BOOK						
Client William Blue			Address: Orange Avenue			
Date.	Contractor.	Work.	No.	Cost.	Certified	Paid
January 10	John Green	Residence		1200		
March 6			1		200	200
May 20			2		100	100
June 30			3		500	1000
July 20		Extras		13 10		
August 1		Final	1 & 1		213 10	12 10
June 20	William Purple	Blinds	a c	15 6	15 6	15
July 14	John White	Electric Light	a c	21	21	21

LEDGER.						
Client: William Blue.			Address: Orange Avenue			
Date.	Contractor.	Work	No.	Cost	Items. A. Rendered	Paid
August 1	John Green	Residence	21	1213 10		
January 1		Advertising	6		15	
July 14	John White	Electric Light	21	21		
June 20	William Purple	Blinds	21	15 6		
August 1		Travelling	6		2 10	
August 10		Commission 5%		1219 16	62 9 9	65 14 9
August 15		By cheque				65 14 9

DEPOSIT BOOK.						
Date.	Client.	Contractor.	Work	Received.	Paid	
January 8	William Blue	John Green	Residence	20 - -		
June 30		By cheque	John Green			20 - -
February 17	John Yellow	James Brown	Factory	50 - -		

RECEIPTS.						
Date.			No.	Bank.	Earnings.	Refunds.
Aug. 15	William Blue	Commission, etc.	16	65 11 9	£2 9 9	15
Aug. 20	John Yellow	Survey Fee	13	2 2 -	2 2 -	
Aug. 21	Richard Green	Cash Lent	20	2 10		2/10
Aug. 30	William Black	Survey & Travelling	30	4 7/-	4 3 -	1 4

PAYMENTS.						
Date.	No.	Bank.	Exs.	Refunds.	A.	B.
June 30		Office Rent	5	5		
June 1		Petty Cash	1 10	1		
July 3		Orange Advertising	3 10	2 10	10	
July 4		Stationery A c				
July 4		Referees' Fees			15	
July 6		Richard Pink	13	2 2	2 2	
July 6		A. Chrome's A c			5 4	
July 7		Richard Green—				
July 7		Cash Lent	17	2 10	2 10	
July 9		B. Grey's A c		7 4		7 4

PETTY CASH AND POSTAGES.						
Date.		No	Received	Exs.	Refund	Balance
January 3	Cheque		1			
	Post—Yellow 1d., Brown 2d., Green 1d.			1d.		
	Mr. Black, 9d.			9d.		
January 4	Advertising Green's House					
	Tea Money			1 6		
January 6	Travelling—Yellow					
	Post—Pink 1d., Green 3d.			1d.		
			1	2 11		

pleasure results when the total of four agrees with that of three, unless the agreement is caused by the entry of "bad debt."

## DEPOSITS.

Many architects who insist upon preliminary and final deposits fail to keep a

proper account of them, and the result is times results. Only two columns are necessary. One when the deposit is made, the other when paid, but it is a good plan to keep two or three columns for each transaction, and better still to have space for the tenderer to sign the receipt when the deposit

is returned. The balance of this book should agree with the balance in your trust account at the bank, for an architect who values his reputation should only place trust moneys in such an account.

#### CASH BOOKS.

The system now advocated is more simple and an improvement upon the one I gave before the Institute about 25 years ago. As to cash received, there are only three columns necessary, assuming that you pay all moneys into the bank, as you should. No. 1 is the amount received and paid into the bank, and this amount is generally divided into the two other columns, No. 2 being the amount earned and No. 3 being refunds or amounts which are repaid, such as advertising, travelling expenses, etc. In this latter column would also be entered repayments for money lent, or other items paid, out of which you make no profit.

As to cash paid, four columns are required. In No. 1 you enter the amount drawn from the bank. This may be for office expenses, and entered in No. 2, or for advertising, travelling expenses, or other amounts to be refunded, in No. 3, or for principal A's private account, No. 4, or, where there are partners, B's account in No. 5 and C's account, No. 6. You may prefer to keep all partners drawings in one column and dissect them afterwards, and, if so, four columns will be sufficient, but I recommend a separate column for each partner.

As to these cash books, I recommend totalling each page and carrying the totals to similar columns in the private ledger. When your income tax has to be made up, the difference between earnings and expenses gives the business income, and the balance between the two columns of refunds will often suggest sending out neglected accounts. Amounts received for capital or paid out for furniture and other accounts will be entered in these refund columns, as they are neither earnings nor expenses. It might be more accurate to head these columns ledger accounts, but for the fact that their main function is to deal with refunds and amounts intended to be refunded. Last of all is the postage and petty cash book. This I recommend to be in four column form. First, the cash received; second, that expended on postage, travelling, and other expenses not to be refunded; third, expenses, telegrams, and other items to be charged to clients and refunded; and, fourth, a column for balance. The refunds are best entered in the block of the next cheque paid into petty cash.

Borrowings from petty cash should be avoided as much as possible, and can be marked with a circle in the refund column, and the repayment with a circle in the cash received column. All these details have been tested for years, except the deposit book, which my firm does not need, and all have been proved successful and save worry.

The Letchworth Town Council have received a letter from the Local Government Board stating that it did not appear to them that they would be now justified in sanctioning a loan for the erection of working class dwellings in the borough.

Mr. T. W. Woodruff, who has acted as clerk of the works at the building of the East Kent Colliery villages, has been appointed from out of 160 candidates surveyor to the Dover Rural District Council, at a salary of £275 a year, in succession to the late Mr. Sargent.

Bristol Cathedral is about to receive an important addition to its fittings in the form of a new bishop's throne, with chaplain's stall, designed by Mr. Roland Paul, F.S.A., of Bristol. It replaces an inadequate structure erected as a temporary expedient in 1897 for the confinement of Dr. Forbes Browne.

To assist in relieving the housing difficulty, Gretnock Corporation have agreed to proceed with another extensive scheme. Ground has been secured in the East end, and at a special meeting it has been decided to accept the tender of the West of Scotland Building Company for the erection of a large number of houses of the cottage type. Financial assistance is being given by the Government. A similar undertaking is at present being carried out in the centre of the town, and at the Broom Park the Admiralty are erecting houses for men engaged in war service.

#### NATIONAL FEDERATION OF BUILDING TRADES EMPLOYERS.

The thirty eighth annual meeting of the National Federation of Building Trades Employers of Great Britain and Ireland was held at Caledonian Hall, Holborn Restaurant, W.C., on Wednesday last, and was very numerously attended by representatives from all parts of the United Kingdom. The chair was occupied by the President, Mr. A. W. Sinclair, J.P., of Scarborough.

#### THE ANNUAL REPORT OF THE COUNCIL.

stated that the Federation comprises the same county federations as last year, but further increases have taken place in the membership. The total number of local associations affiliated is upwards of 182, with an aggregate membership of about 6,700. The present state of the building trade may be fairly described as quiet, with a tendency to further restrictions, although there is not much unemployment owing to the prevailing war conditions. It is becoming increasingly evident that there will be a shortage of labour in our trade whenever a revival takes place. That there is a continued restriction of house-building is also evident, and can only mean that eventually the already acknowledged shortage of housing accommodation will have to be made up. It would appear, therefore, that a revival of building on a big scale may be expected at no distant date, and it behoves us to be ready with both men and material to handle it. The question of providing for an adequate supply of labour again engaged the attention of the Administrative Committee at its November meeting. The Council urges the importance of federations, associations, and individual firms giving the question of apprenticeship training their serious attention. The National Board of Conciliation has sat five times and dealt with two appeals, giving a decision in one case but no decision in the other. During the year the following bodies have been admitted to the conciliation scheme:—The London Master Builders' Association, the London Branch of the Amalgamated Society of Carpenters and Joiners, the London Branch of the General Union of Carpenters and Joiners, the United Builders' Labourers' Union, the Electrical Trades Union, and the Operative Bricklayers' Society. The following further applications have been recommended by the board for acceptance:—The Naxvies, Builders' Labourers, and General Labourers' Union, the Amalgamated Slaters' and Tilers' Provident Society, the National Union of Gasworkers and General Labourers of Great Britain and Ireland, the United Order of General Labourers of London, and the National Federation of Slate Merchants, Slaters and Tilers. The work which the board undertook in connection with the proposed national demarcation scheme has been so far successful that the scheme was launched on December 14. It has received the adhesion of 18 out of the 22 national bodies which were brought to conference on the proposal, and the failure to adhere of those outstanding is understood to be due to special difficulties of a transitory character, and not to any want of sympathy with the scheme. The rules have been adopted, and the various parties are now invited to elect the local, centre, and National Committees, and to hold their annual meetings in February and March, after which the scheme will be in full working order, it is believed. The National Joint Committee of Appeal has held one meeting and dealt with six appeals, giving decisions in five cases; in one case no decision was reached. The following summary gives an indication of the work of the Centre Boards of Conciliation:—The Northern Centre dealt with 25 cases during the year, which were disposed of as follows:—Settled by the board, 19; referred to higher board, four; ruled out of order, one; referred back, one. The Midland Centre Board dealt with one case:—Settled by the board, one. The S.E. Centre Board has dealt with two cases:—Settled by the board, none; referred to higher board, one; referred back, one. The National Reserve Fund continues to progress: War Loan stock to the amount of £1,000 has been taken up on this account.

As to forms of contract and sub-contract, there are no fresh developments to record, except that negotiations for a form of sub-contract for use with sub-contractors employed directly by the sole-contractors have been resumed. To the Belgian Builders Relief Fund a total, including bank interest, of £1,948 16s. 8d. has been subscribed. Every effort is being made to reduce the demands upon the fund by finding employment in munition work for those recipients who are capable of it; but there will still remain a majority who will have to depend upon the kind-heartedness of their English confrères for the means wherewith to keep them until they can return to their homes. Mr. Van Ophem, the general director of the International Federation of Building and Public Works Contractors, writes conveying his profound gratitude for the so helpful assistance given by the Federation to his unfortunate compatriots. The sub-committee appointed to deal further with the apprenticeship question is considering the proposals which have been drawn up by the Institute of Builders. Meanwhile, it is reported from the North-Western Federation that a special and influential sub-committee has this question in hand, and is beginning operations by ascertaining the number of apprentices employed in each district, and the number which might be employed under the local working rule agreements; the question of revising apprentice wages, to bring them more into line with the wages paid to boys in other occupations in the various localities, is being taken in hand. An effort is being made to induce employers to interest themselves more in the education and general welfare of their apprentices and in providing them with suitable tools. A desire is expressed that the National Federation should take steps to induce the Government to establish trade continuation schools, at which scholars should be compelled to attend. The last-named suggestion involves legislation of so contentious a kind as to be impossible until after the war; to carry it out when the time comes will involve a large increase in the cost to the State of education, so that it is evident that it will have to await the favourable moment when money is available and Parliament willing to carry out so far-reaching a reform. Following on representations made to the Government by representatives of this Federation and others, there has been an extension of the provisions contained in Section 7 of the Munitions of War Amendment Act to the construction, alteration, or repair of works of construction and buildings for naval and military purposes, of buildings in which munition work is, or is intended to be, carried on, the erection of machinery and plant therein, and the erection of houses for the accommodation of persons engaged or about to be engaged on munition work. It follows that no firm will be able to take away labour from such work if the establishment is covered by the Order of the Minister made under Section 7 of the principal Act. As to pre-war contracts, complaint is being made as to the lack of equitable consideration shown to contractors by certain of their clients now that contracts, taken prior to the war, are hushing, or being settled up. When war broke out the position in which contractors were thereby placed was brought to the notice of both the Board of Trade and the Treasury. Although it did not seem practicable to cancel existing contracts because of what had happened, contractors were led to believe that clients in general would give equitable consideration to the question of losses on contracts sustained in consequence of the war by contractors who had faithfully carried out their undertakings. In some cases a promise to that effect was given. Judging by the reports and complaints received, these expectations are not being realised. Apparently consideration must be shown by contractors to their workmen in the shape of war bonuses because of the abnormal cost of living due to the war, but no consideration is to be shown by the building owner for the contractor, who is doubly penalised by having to pay war bonuses (for which no return in extra output is received), and by having to pay extra for materials (mainly because of the extraordinary naval and military requirements of the Government).

notwithstanding the fact that the building owner gets the entire benefits of the contract just as though no war existed. Why should the latter not bear a share of the extra cost of his work due to this extraordinary war? In common fairness he ought unquestionably to do so, and it is only a reasonable expectation on the part of contractors that Government will see that their case is given the same equitable and effective consideration that has been given to other equitable claims, such as, for example, damage by King's enemies in the shape of destruction of property by bombardment of coast towns. Indirectly contractors are suffering damage because the King's enemies, by making war on a huge scale, have caused contractors to incur serious losses in carrying out their contractual obligations on contracts taken prior to the war. Consideration is being shown to mortgagors, to tenants, to workmen, to property owners, and in some cases emergency legislation passed for their relief, and why not to contractors where reasonable grounds can be adduced? Damage to roads by heavy motors: The Treasurer of the Federation (Mr. Willcock) was appointed to give evidence before the departmental committee which has under consideration the law and regulations relating to the construction and use of road locomotives and heavy motor-cars in Great Britain with a view to the issue of a report as to what amendments, if any, are desirable. On behalf of this Federation a statement was put in wherein it was pointed out that the Federation is interested, both directly and indirectly, in the inquiry, because its members are in the habit of using road locomotives and heavy motor vehicles for the transport of materials, and because they are subjected to claims under the Highway and Locomotives Acts for damage to roads alleged to be due to their excessive traffic. In view of the anomaly which would result from a partial dealing with this question, it was submitted that the recommendations of the committee should include such an amendment of the provisions in the said Acts relating to this question as will bring a contractor's other transport vehicles into a parallel position to that of his heavy motor vehicles, so that the present uncertainty as to whether any claim will be made and as to what its amount may be will give place to such a definite and equitable apportionment of liability as will enable him to estimate with reasonable certainty whether he has anything to pay, and how much, prior to taking on a contract. The general statement was accompanied by a summary of actual cases reported from various parts of the country, and attention was called to the capricious and costly way in which contractors are penalised under the law as it now stands. Lists of occupations have been recently published in which the workmen employed are exempted, wholly or mainly, from military service. The principle which has been adopted is not to deal with the question by industries, but by occupations, so that it may be necessary to search the lists to find out whether any particular class of workmen in a particular industry is exempt. As there are certain classes of men employed on the staffs of building firms which do not appear to have been so far included in those lists, a communication was made to the Reserved Occupations Committee, calling attention to the difficulty of replacing such men as estimators, general managers, managing partners, works managers, job foremen or general foremen, and foremen machinists, or leading machine hands, on account of the special training as experts in their respective occupations, and pointing out that men of that type are indispensable to building contractors. A request was made that such classes of men should be scheduled, not necessarily for entire exemption, but for exemption upon their employer's request. The Board of Trade replied that the committee is unable to recommend the extension of the list of reserved occupations to include the classes referred to, but under Section II. of the Instructions to Local Tribunals opportunity is given for appeal to the local tribunal on the ground that such men are individually indispensable. Normal relations continue to subsist with the owners, which is satisfactory, considering the difficulties raised in certain districts by the

demand for munition workers. The continued adhesion of fresh bodies to the conciliation scheme and the formation of a representative scheme for dealing with demarcation disputes is a good augury for the future.

#### THE EMPLOYERS' PARLIAMENTARY COUNCIL.

The annual report of this Council stated that the whole time of Parliament was occupied by the Government, the only measures brought forward being those necessitated by the great crisis in our national history. Many of these measures were of a drastic character in the power given to the Government to regulate labour, prices, profits, and wages, and to control the industries connected with the supply of equipment and munitions for the naval and military forces of the Crown. Excepting, however, in cases where it was clear that the Government had not fully considered the matters with which they proposed to deal, or did not sufficiently appreciate the effects of particular provisions of their measures, no concerted action by employers was taken. Any representations that were made mostly had the effect desired. It is highly probable that when the Emergency Acts expire at the end of the war attempts will be made by the State Socialists to continue some of their provisions. It is unlikely, however, that such attempts will meet with success, or, indeed, with any considerable sympathy. These Acts were passed expressly for the purposes of the war, and on the clear understanding that their operations would cease with the end of the war. Moreover, the country has had sufficient experience of adventures in State Socialism to justify a sharp protest should any indication be made that it is intended to take advantage of emergency legislation to permanently extend the province of Government in the direction of establishing State monopolies in any trade or industry. The past year has been one pregnant with grave issues affecting the future relations of capital and labour in Great Britain. Moreover, employers have witnessed a procession of startling events which have confirmed all their predictions with regard to labour legislation and the methods of labour unions in recent years. After what the country has experienced in connection with labour union rules and restrictions, it is amazing that the Government should give an undertaking, in certain respects by statutory provision, that after the war the old conditions shall be restored, and unchecked labour unionism permitted to resume its sway. Generally speaking, employers will doubtless be prepared for any move that may eventually be made in this direction, and in view of past experience and of the facts revealed by the war, they will make a firm stand against any and every attempt to again bring trade and industry under the heel of that lawless despotism from the effects of which the country has suffered so severely. In some instances, unfortunately, employers have been debarred by Statute from acting on their own initiative in this respect. Thus, for example, where the Munitions of War (Amendment) Bill is in force the labour unions are getting statutory protection for a monopoly of the right to work, and any employer who wishes, during the operation of the Act, to adopt the principle of free labour in his works is to be punished if he seeks to give effect to his desires. This is one of the things that employers' associations will have carefully to watch, with a view to this legislation not being perpetuated.

#### THE STATEMENT OF ACCOUNTS.

showed a total income of £8,783 5s., against £8,350 14s. 8d. for the previous year. The balance carried to balance sheet was £2,167 4s. 6d., against £2,093 12s. 9d. a year ago.

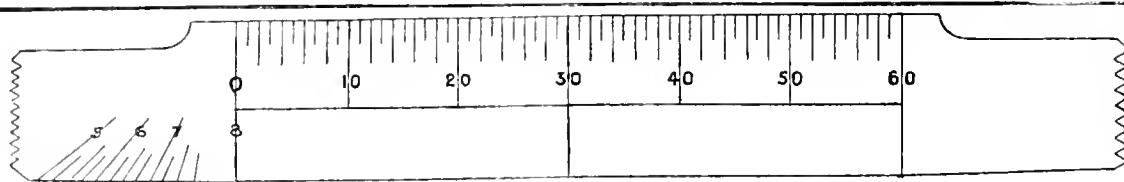
The President, in moving the adoption of the annual report and that of the Parliamentary Committee, remarked that under the circumstances these were very satisfactory. A good work had been carried out by the Boards of Conciliation; the causes of disputes were investigated, and men got what was right by peaceful and fair methods with

out recourse to strikes. The national union for the demarcation of trades, a source of frequent and bitter disputes in the past, had been successfully brought into operation, and he had every hope that the four remaining bodies which had contested on the subject would soon come into line with the others who had agreed to the proposal. He regretted that at present the Royal Institute of British Architects were not prepared to recognise sub-contractors, but he believed that if architects were assured that a formal sub-contract would not add to their responsibilities, they would be willing to agree to its issue, and he trusted that this matter would be speedily settled. One of the pressing needs of the trade was an adequate supply of apprentices, and in London and other large centres no youths were being apprenticed. Contractors had been severely and adversely affected by the want of consideration shown in reference to contracts entered into before the war. While the moratorium for a time protected mortgagors, it seemed that the burden of the greatly increased cost of living, the advance in prices of all materials, the rises in wages, and the granting of war bonuses must be shouldered by the builder, who was held to the letter of his contract. He trusted that some measures would be devised for securing justice to the members of this federation. The law as to extraordinary traffic was in a most unsatisfactory condition, and was administered so diversely by various local authorities that contractors had no means of ascertaining in advance what demands would be enforced upon them for damage to roads by heavy traffic. In conclusion, the President referred to the recent death of their past president, Mr. George Macfarlane, of Burnley, who took a prominent and useful part in every meeting of the federation, and congratulated Mr. William Shepherd, of Berrymondsey, the president of the Employers' Parliamentary Council, on his recovery from a severe accident.

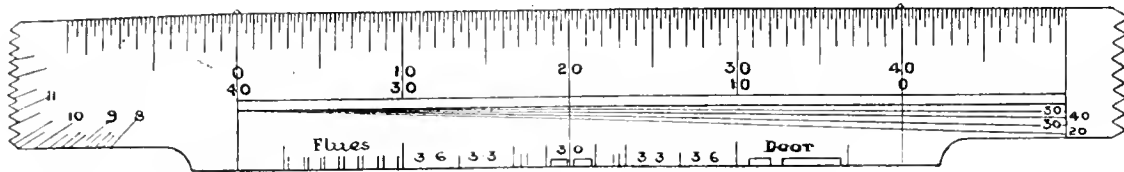
Mr. Shepherd, who was received with sympathetic cheers, seconded the motion, remarking that the labour difficulties with which employers had combated during the past five-and-twenty years had recoiled upon the Government, and he trusted it would make the latter more sympathetic towards builders. The Parliamentary Council had refrained from resistance to the emergency legislation of the Government, as they felt it would have been wasted energy and have alienated public sympathy. He deprecated all class legislation, and urged that builders had no quarrel with trades-unionism, provided it did not encroach upon the rights of employers.

Mr. T. Foster, of Burnley, wished there had been something more definite and useful in the report of the Employers' Parliamentary Council. They should have considered, decided upon, and prepared a definite policy of action, and not postponed all action until after the war. The report of the Parliamentary Council was remarkable for its omission to deal with the important issues which should have come before it, such as the employment of labour on the making of munitions. On this matter they heard great complaints of the slackness of workers, but this was, he held, due to the gross mismanagement of the Government authorities. A matter that should have been dealt with by the Parliamentary Council was the inferior exemption of wholesale co-operative societies from the payment of income tax. In the North of England traders were up in arms against the privileged position in which co-operative societies now stood, and the time had come when the Federation should be upon equitable treatment in taxation.

In reply Mr. W. Moffat, of Berrymondsey, the President said the Council of Conciliation regretted that they had not been successful in getting the Reserved Occupations Committee to recognise that such classes as the building trades as masons, carpenters, and above all estimators, were absolutely indispensable, and could not be replaced; but he trusted that the Local Tribunals would realise the difficulties of the trade and exempt these classes.



— Under Side of Scale —



— Upper Side of Scale —

Fig 1 and 2

Showing Under and Upper Side of Scale

Fig 3 shows application to courses of bricks and multiple chimneys.

Fig 4 shows its use as a scale for details.

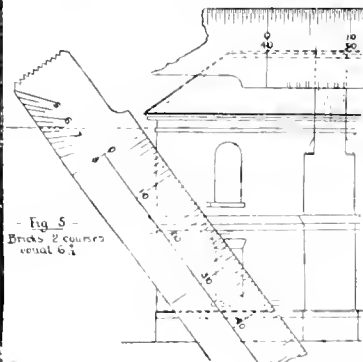


Fig 3  
Bricks 2 courses  
equal 6 1/4

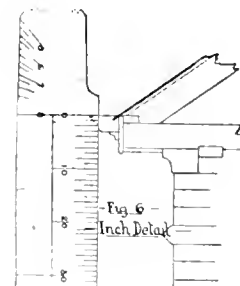


Fig 4  
Inch Detail

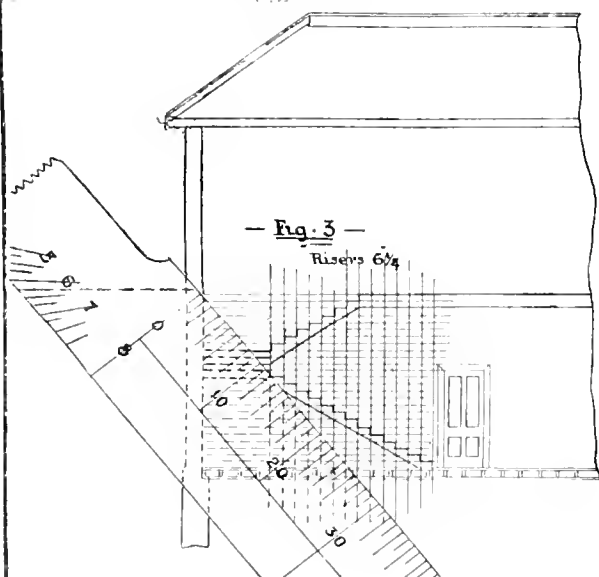


Fig 3

Risers 6 1/4

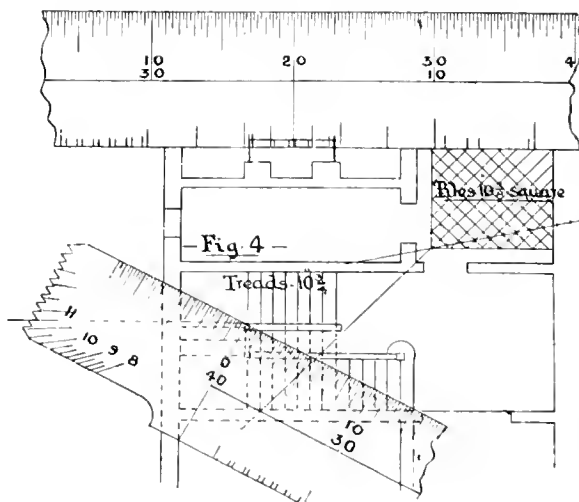


Fig 4

Treads 10 1/2

Risers 6 1/4

Fig 3 shows its application to setting out heights of a staircase

Fig 4 shows application to plan of staircase plan of chimney, and laying out of tiles

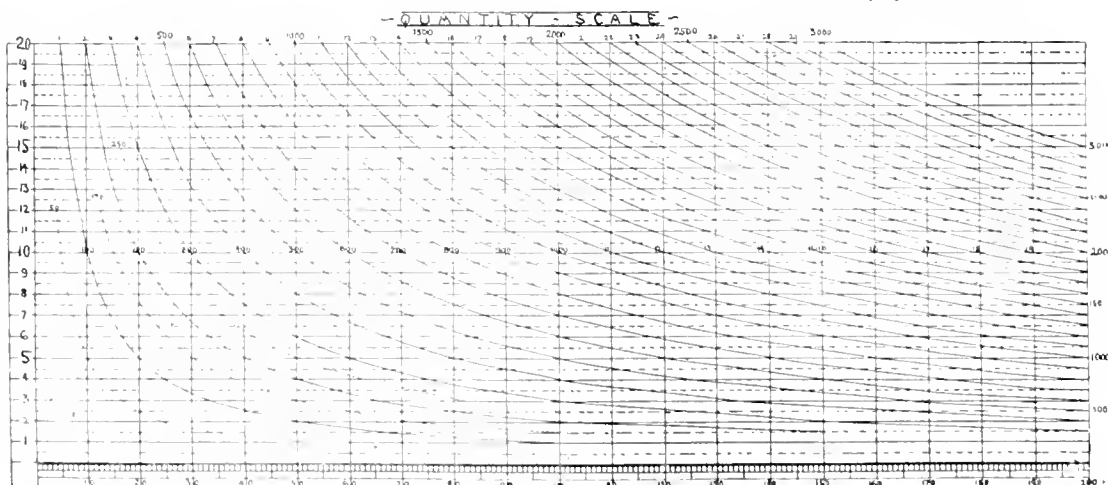


Fig 5 shows Quantity Scale

"AIDS TO ARCHITECTS' WORK"

Illustrating Paper by ANKETELL HENDERSON (P.P.) M.C.E., Lecturer in Architecture, University of Melbourne



Further explanations having been given by Mr. A. G. White, the secretary, the reports were unanimously adopted.

Mr. Henry Wilcock, of Wolverhampton, the hon. treasurer, moved the adoption of the accounts and balance-sheet and the auditors' report.

This was seconded by Mr. S. Easten, of Newcastle-on-Tyne, senior hon. auditor, who pointed out that they had reason to be thankful that the year's receipts only fell short of the expenditure by about £100. He replied to several questions by Alderman John Bowen, J.P., of Birmingham, a past-president, and the motion was unanimously carried.

#### THE BELGIAN BUILDERS RELIEF FUND.

The President appealed for further donations to this fund, which, he was informed, would be exhausted by the end of February unless more money came in. They had experienced extraordinary difficulty in their efforts to find employment for their Belgian guests. The better-class refugees were principals and managers of building firms, and were unaccustomed to manual labour, and the actual workmen could not understand English and were not familiar with our methods of working, and all were alike penniless, and in many cases had large families.

Mr. Easten and Mr. W. Thomas, of Cardiff (past-president), described the interviews with Mr. Henry Holloway (now of the Board of Trade), who was extremely sympathetic, and with Mr. John Hunter, of the Ministry of Munitions, with the view of securing employment for stranded Belgians. Mr. Easten mentioning that he was employing on the hundred houses he was building at Newcastle Belgians, in addition to his own staff of workmen, and that he had decided, should any profit be made on the contract, to give one-half the amount to the Belgian Relief Fund.

Mr. Amphlett, of Birmingham, and Mr. Marshall, of Warrington, supported the appeal.

Mr. Volekerock, legal adviser to the building trades of Antwerp, speaking in excellent English, expressed his heartfelt thanks to the members of the Federation for their generous help afforded to his unfortunate compatriots.

#### THE FEDERATION SUBSCRIPTION.

The President said that the Administrative Committee had considered the desirability of raising the subscriptions of members, but had decided, under the circumstances, that it be continued at the present sum. This motion, which was seconded by Mr. Wilcock, was agreed to with a general sigh of relief.

#### PRE-WAR CONTRACTS.

Mr. Ernest J. Brown, past-president, said the pinch of being compelled to adhere to the letter of all contracts entered into before the war was sorely felt by many London builders, and he was astonished to find that appeals for relief had not come in from every centre throughout the country. Action ought to be taken by such a strong and powerful body as the Federation, and not left to individual members to endeavour to protect themselves. The subject was brought before the London Master Builders' Association recently by a member in a very eloquent speech. The association realised the unfortunate position in which some members were placed, but recognised that this was a national question, and as such ought to be taken up by the Federation, who ought to act as quickly and as strongly as possible, in order to obtain redress for unfortunate members who had suffered loss by carrying out pre-war contracts. Their business was at the best of a very speculative character, but the entire loss due to the outbreak of war ought not to fall on one trade. Since then information had come in as to some five-and-twenty cases where builders had been hit very hard indeed—in some cases representing losses of very many thousands of pounds, with no prospect of any redress whatever; the building owners refused to meet the contractors in any way towards sharing the anticipated loss, which was practically a charitable gift to the employer. Such cases did not come under the

Emergency Act. The Government had commandeered labour, goods, and means of transport, causing prices to advance from 15 to 60 per cent. in some cases, and yet did nothing to promote or facilitate legislation to recoup the trades who suffered by the action. A year ago, when speaking at Newcastle, the Prime Minister spoke of compensation being due from the taxpayer to those who, through no fault of their own, and suffered in pocket, but nothing had been done to fulfil this promise so far as builders were concerned. A question was afterwards asked in the House of Commons by Alderman and Sheriff Touche as to a case which arose in the City of London, where the ground landlord refused to allow a large contract for rebuilding, amounting to some £200,000, entered into in good faith just before hostilities broke out, to be postponed until after the war. (Cries of "Shame!") Mr. Touche appealed to the Chancellor of the Exchequer to devise legislation to relieve such a manifest injustice, but Mr. McKenna excused himself on the ground that it did not come within his Department. In December Mr. Touche appealed to the Prime Minister to obtain compensation from the Government for the case. Opinions seemed to differ as to the tenor of his reply, but he was understood to be willing to receive a deputation, an interpretation which had since been stated to be inaccurate. If the Government held it to be right to pay war bonuses for buildings in course of erection, he did not see how they could refuse to protect builders from losing money by contracts owing to conditions which were solely due to the war, and it was but equitable that builders should be compensated for such losses. He moved "That the officers of the Federation be requested to consider the question of pre-war contracts at a very early moment, to collect as much evidence as possible from members of the Federation, and to take steps to place the whole matter before the Government, with a request that serious consideration be given to it, with a view to assisting contractors to carry out their obligations."

The motion was seconded by Mr. N. R. Stirling, of Liverpool, who said the North-Western branch federation discussed the matter twelve months ago, and sent a resolution appealing to employers and the Parliamentary Council to take action as to pre-war contracts. A reply was received from the Council stating that they did not see what action could be taken in the matter.

Mr. Waring, of Neath, Glam., and Mr. E. L. Dove, L.C.C., supported the motion, the latter remarking that they must be careful to confine their action to the protection of builders only. As a federation they had no concern with the grievances of property owners nor with those who entered into building leases and had burnt their fingers, who must look to their own organisations for remedies for injustices. The Treasury had enforced economy upon county, borough, and urban and rural councils, boards of guardians, and other authorities, and these bodies had adopted an attitude of *non possumus*, and had refused to entertain the question of compensation. In some cases where contracts had been stopped the contractors had been able to secure some compensation, but pressure should be put upon the Government to obtain fair compensation, at least from local authorities, for the extra cost involved in executing contracts entered into before the war.

Mr. William Shepherd said a matter of principle and very great expenditure were involved, and he feared it would be difficult to persuade the Government to take the question up. He suggested that a small sub-committee should be appointed to consider whether it would be better to appoint a deputation to wait upon the Prime Minister or to draft a memorial to be submitted to him in writing.

Mr. Easten complained of the great delay in taking action. Why should it have been necessary to wait until the half-yearly meeting before appointing a sub-committee to collect information as to hard cases? Much valuable time had been lost.

Mr. Chessum, of London, moved a amendment that the closing words of the resolution "with a view to assisting contractors to carry out their obligations" be omitted, and that in lieu thereof the words added "so that contractors may be recouped for losses incurred upon contracts entered upon with the Government and with public authorities prior to the declaration of war."

This amendment was seconded by Mr. Fred Higgs, of South Lambeth, past-president.

Mr. Waring hoped that the Federation would show themselves in any negotiation to be a live body.

Mr. Moffat said this question was discussed as far back as August last. The Federation ought to have backed up the builders, but had failed to get assurances from the Government.

Mr. J. Davidson, of Leeds, said many local authorities in Yorkshire had absolutely refused to give any compensation whatever to builders who entered into pre-war contracts. In one case where the surveyor feared the enhanced cost would fall on his board of guardians he insisted upon substituting concrete for timber in the flooring of new cottages that were being built by the board, but directly he discovered that the loss would fall upon the builder he demanded that wooden floors should be provided as in the contract.

Mr. Easten held that they should insist upon compensation being given in all cases of contracts with the Government or with local authorities, but they could not expect to obtain legislative relief in the matter of private contracts. He would move a further amendment that the Federation seek to obtain recoupment of losses by builders on work carried out for the Government or for public authorities under the sanction of the Local Government Board.

This was seconded by Mr. J. W. White, of Sunderland, past-president.

Mr. J. Croad, of Gosport, thought they would do well to approach the Treasury rather than the Premier.

Mr. W. J. Renshaw, London, strongly supported the original resolution.

On being put to the vote, the amendment of Messrs. Chessum and Higgs was carried by 47 votes against 31, several members stating that they declined to vote.

Mr. E. J. Brown expressed his surprise and disappointment with the vote just taken; he could not have believed that the Federation would let down all fellow members who had taken pre-war contracts except those who had Government and council contracts.

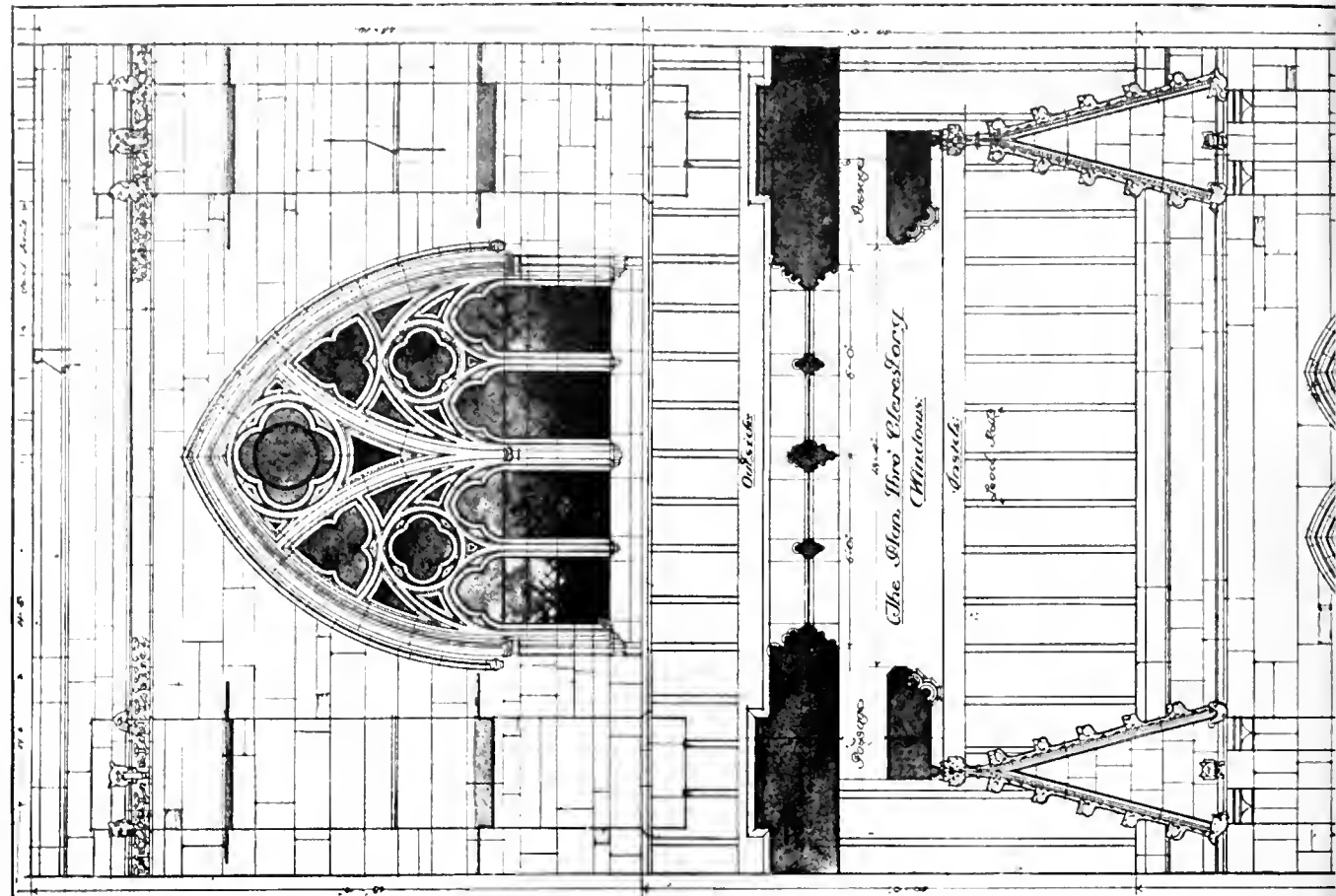
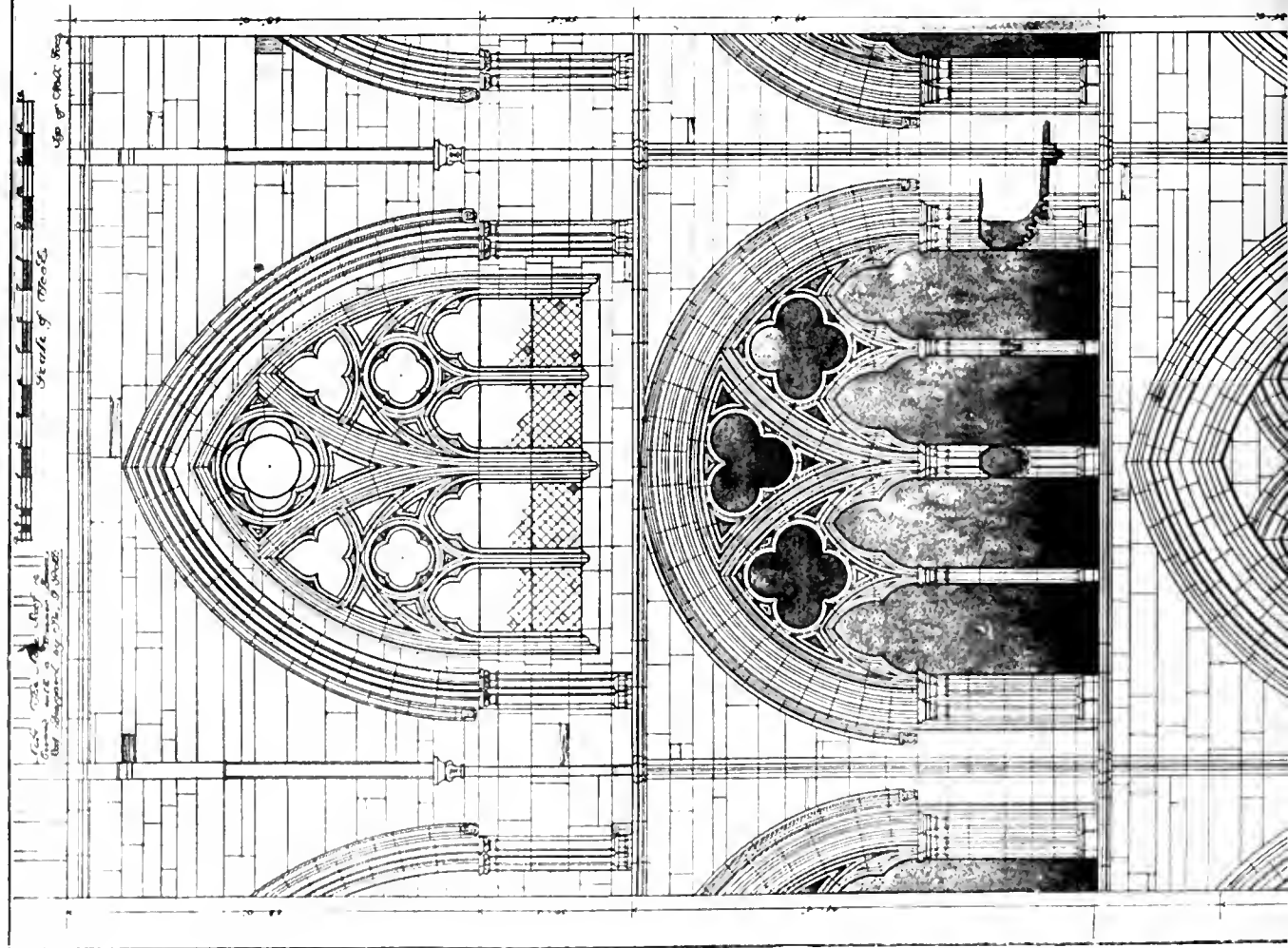
Mr. Easten replied that Mr. Brown's remarks came with a very bad grace. He himself was a sufferer from pre-war contracts with private individuals, but in voting for the amendment he had realised they could have no chance of obtaining from the Government legislative compensation for losses on such contracts.

[As finally adopted, as a substantive motion, the proposition read as follows:—"That the officers of the Federation be requested to consider the question of pre-war contracts at a very early moment, to collect as much evidence as possible from members of the Federation, and to take steps to place the whole matter before the Government, with a request that serious consideration be given so that contractors may be recouped for losses incurred upon contracts entered into with the Government or with public authorities prior to the declaration of war."]

Alderman Bowen moved that a committee consisting of the President, vice-president (Messrs. W. F. Wallis, J.P., Middlesbrough, and James Storer, J.P., Stalybridge), the treasurer (Mr. Wilcock), and hon. auditors (Messrs. Easten and Dove), be appointed a special committee to consider whether action should be taken, whether by means of a deputation, to carry out the resolution.

This was seconded by Mr. W. J. Renshaw.

Two or three members at the close of the hall complained that the Federation was belated in its action, to which the President with some warmth replied that the Council served voluntarily for the good of the building trades, and incurred very considerable travelling and hotel expenses when





ever they met. They had done their best in very difficult circumstances.

Mr. Moss, of Liverpool, opposed the resolution, which, however, was carried by an overwhelming majority, a suggestion being adopted unanimously that the special committee should have power to co-opt not more than four members of the Association.

#### NATIONAL SCHEME OF CONCILIATION.

The President stated that applications for affiliation under this scheme had been received from the following six bodies: The Navvies, Builders' Labourers' and General Labourers' Union; Amalgamated Slaters and Tilers Provident Society; National Union of Gasworkers and General Labourers of Great Britain and Ireland; United Order of General Labourers of London; National Federation of Slate Merchants, Slaters and Tilers; and the National Union of Operative Heating and Domestic Engineers. The Executive Committee, to whom the question was referred, reported that all the organisations should be accepted for affiliation with the exception of the last-named but one, the National Federation of Slate Merchants, Slaters and Tilers, who, it appeared, had no working rules and were not a body of workmen. After some discussion, the recommendation of the Executive Committee was agreed to, and it was further unanimously decided, on the motion of Messrs. R. W. Moon, of Newport, Mon., seconded by Mr. Storrs, Vice-president, that the report be adopted. On the motion of the President, seconded by Mr. Moon, it was referred to the Executive Committee to decide what representation on the employers' side of the Conciliation Board is to be accorded to any sub-trade employers' association admitted to the scheme.

Mr. Renshaw said the working of the Conciliation Scheme had not been of the satisfactory character which they were led to anticipate. This was largely due to one member of the Board, who continually raised small points so as to bring the whole proposal into dispute. The rules ought to be carried out in the spirit as well as in the letter, but the London Association had had to draw attention to two or three cases in which rules had been flagrantly disobeyed by the workmen, and had had to insist upon their being observed. Further, conciliation boards ought not to be utilised for debt collection.

The President read extracts from the rules of the Conciliation Board showing that these infractions of the spirit were provided against. Such cases as Mr. Renshaw alluded to ought to be referred to the Central Board.

Mr. Hope, of Sunderland, proposed, and Mr. Foster seconded, a vote of thanks to Mr. Storrs, the chairman for the past eleven years, of the National Conciliation Board, who was congratulated for having brought matters to a successful issue.

The motion was carried with applause, and was briefly acknowledged by Mr. Storrs, who said that in the North of England, notably in Cheshire and Lancashire, the leaders of the men loyally carried out the decisions of the Board, and this was confirmed by the President from his experience in Yorkshire.

#### THE APPRENTICESHIP SYSTEM.

The President said independent schemes for dealing with the need for improvement of the supply of apprentices had been formulated by the Federation and by the Institute of Builders. The new schemes were now under consideration by a committee, who would report in due time.

Mr. Renshaw regretted that the committee had not yet submitted their report on this important and urgent matter. Mr. T. Costigan's scheme seemed to him good and workable, but would need for its operation Parliamentary sanction.

Mr. W. Cooke, jun., of Preston, said it was impossible in Lancashire, under present labour conditions, to obtain apprentices at a reasonable wage. In any scheme adopted there must be considerable elasticity to allow for the differing financial conditions existing in various districts.

#### ELECTION OF NEW PRESIDENT AND OFFICERS.

The Executive Council recommended the following election of officers: President, Mr. W. F. Wallis, J.P., Maidstone; vice-presidents, Mr. James Storrs, J.P., Staleybridge, and Mr. H. Willcock, Wolverhampton; hon. treasurer, Mr. S. Easton, Newcastle-on-Tyne; hon. auditors, Mr. F. L. Dove, L.C.C., and Mr. A. J. Forsdike, Sheffield.

The Chairman proposed the adoption of the report, and this having been seconded by Mr. E. J. Brown, was carried by acclamation. Mr. Wallis was invested with the chain of office and took the chair. He remarked that he joined the Federation in 1891, when the annual income was but £180.

In acknowledging a vote of thanks for his services in the chair, proposed in cordial terms by Mr. Wallis, Mr. Sinclair said he must honestly confess he had thoroughly enjoyed the mild excitement of his year of office; he expressed his indebtedness to their efficient and energetic secretary, Mr. A. G. White (who suitably replied), and his assistant, Mr. Ward.

It was agreed to accept the invitation conveyed by Mr. Croad to meet at Brighton for the half-yearly gathering in August next.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A meeting of the Royal Institute of British Architects was held at 9, Conduit Street, W., on Monday afternoon, the President, Mr. Ernest Newton, A.R.A., occupying the chair. The proceedings only occupied twenty minutes, and but eleven members were present.

Mr. E. Guy Dawber, hon. secretary, announced with regret that the three following members who had been serving with the Forces had been killed in action:—Private James Everett Bownass, of Princess Patricia's Canadian Light Infantry, Associate; Capt. Arthur Maxwell Phillips, of the 11th Battalion King's Own Yorkshire Light Infantry, Licentiate; and Second-Lieut. T. B. D. Hough, of the 8th East Yorkshire Regiment, Student. He had further to report the decease of Mr. John Ely, Fellow, past-president of the Manchester Society of Architects; and of Messrs. John Walton Taylor and Fred William Burwell, Fellows; Baldwin Brown, Robert Dewar Nicol, and William Whymer, Associates; and Harry William Wakeman, Licentiate.

The names of four candidates for election as Fellows were announced, and it was stated that Mr. Alexander Robert Meldrum had been reinstated as a Licentiate.

#### NOMINATION OF ROYAL GOLD MEDALLIST.

The President announced that the Council had unanimously nominated Sir R. Rowand Anderson, LL.D., Fellow, as a fit recipient of the Royal Gold Medal for the current year, in recognition of his excellent work, his services to architectural education, and his high character and lofty ideals in the art of architecture. (Applause.)

The President called attention to a display on the walls of the gallery of coloured designs and working drawings by the late William Burges, A.R.A., for his house in Melbury Road, Kensington, its decoration, fittings, and furniture. Through the instrumentality of their esteemed Fellow Mr. R. A. Briggs these valuable drawings had come into the possession of the Institute, having been presented by Mrs. Wentworth Watson, a niece of Burges, who now owned and occupied the house. He also mentioned that the Institute had lately acquired, through the generosity of various donors, a number of drawings and sketch notes by the late Norman Shaw, R.A., George Edmund Street, R.A., and W. Eden Nesfield. They included working drawings and contract plans for buildings, and in the case of those by Mr. Norman Shaw his widow had generously allowed the speaker to select from his collection a series of original drawings from her husband's book "Sketches in Continental Cities." On the motion of the President, cordial votes of thanks were accorded to the several donors.

Mr. John A. McBoyle, burgh surveyor and inspector of Puthnockie, has resigned.

## Our Illustrations.

### A COURT IN THE PALACE AT SHIRPUR PAINTED FOR H.H. THE MAHARAJAH HOLKAR OF INDORE, INDIA.

This drawing, by Sir Ernest George, R.A., was exhibited at the last Royal Academy summer show. We gave a reproduction of the other exhibit in the same gallery by the same artist showing the houses erected for the aides-de-camp and staff officers in connection with this palace in our issue for April 30 last. The walls are constructed of brick and rubble, with plastered stucco face, but the arches and piers are of stone. The floors are paved and supported by brick arches set between the joists. Messrs. Sir Ernest George, A.R.A., and A. B. Yeates, F.F.R.I.B.A., are the architects.

### "PANDORA": ROYAL ACADEMY SILVER MEDAL CARTOON COMPETITION FOR A DRAPED FIGURE.

This is the second of the two competitive designs submitted for this silver medal at the Royal Academy students' annual prize-giving, held last month. We published our double-page reproduction of the silver medal cartoon for this subject in our issue for January 5 this year, by Miss Dorothy Frazer Litchfield. We now give Miss Caroline Hall's cartoon. Their schemes are essentially different, though necessarily dealing with the same familiar story, both as regards incident and general treatment. It is therefore not easy to compare them; indeed, so far as uniformity of scheme is concerned they can scarcely be said to compete one with the other, differing as they do and thus displaying the limits of contrast rather than identity of idea. We appreciate the difficulty which must be felt year by year by each succeeding series of Academy students in this particular competition, the ever recurring question being what proportionate amount of drapery is considered desirable by the ever-changing list of judges in these contests. The invariable practice seems to be to name the character chosen and leave the general description intentionally vague. It seems to be understood that the competition was established to promote facility of drapery arrangement and appropriate figure draughtsmanship, the figure itself, however, being in a sense a matter of secondary importance. Miss Caroline Hall has worked out her proposal extremely well with an attractive study of the figure and its accessories excellently drawn. The cartoon represents the moment when Pandora raises the lid of the mysterious casket and peeps inside before she has had time to realise what it contains. The intention of the artist was to portray Pandora as the personification of Curiosity standing tip-toe in her expectancy, with just a hint of mystery and some idea of secretiveness. The figure being turned away from the light, the box is partly hidden by the drapery, leaving unexpressed any suggestion as to what will follow when the contents are fully disclosed.

### BRIDLINGTON PRIORY, YORKSHIRE.

In our issue of December 1 last we illustrated the North Porch of this interesting old building, with descriptive notes, promising another illustration at a later date. This we now give from further measured drawing by Mr. Gordon Hemm.

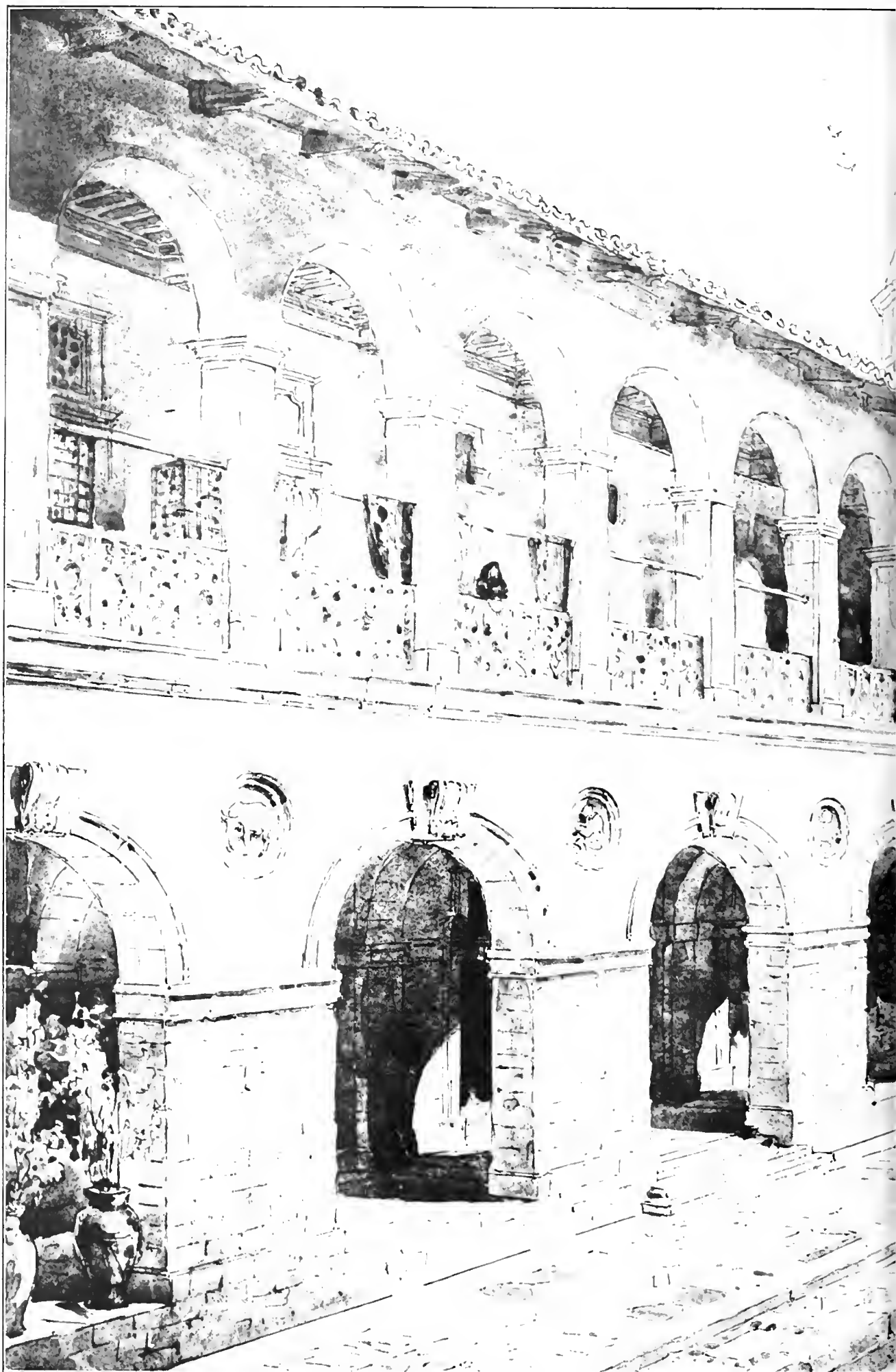
#### AIDS TO ARCHITECTS' WORK.

These two single pages illustrate the paper read by Mr. Anketell Henderson (P.P.), M.C.E., before the Royal Victorian Institute of Architects, which will be found on pp. 109 12 *ante*.

The death is announced, at the age of eighty-seven, of Mr. Thomas Seward, president of the Society of Estate Clerks of Works in 1901 and an active member of the society for the past quarter of a century. The deceased was born in Windsor, and was apprenticed to a builder. After his apprenticeship days he obtained employment under a large firm of builders in London and was soon made a partner and eventually superintendent of all outdoor works. After serving his employers for thirty-five years he was selected as superintendent of works at St. Thomas's Hospital, which he resigned with a pension in 1905.

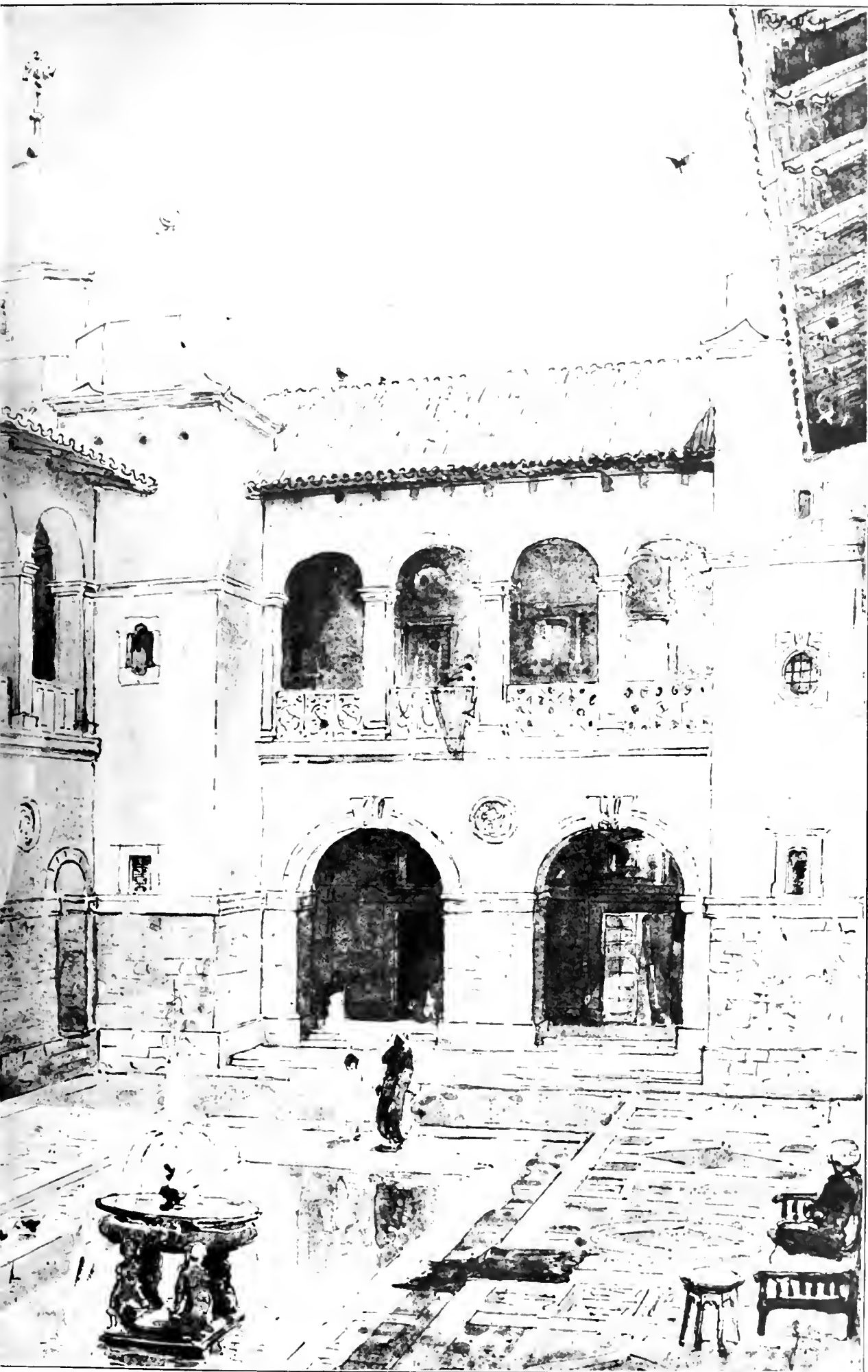






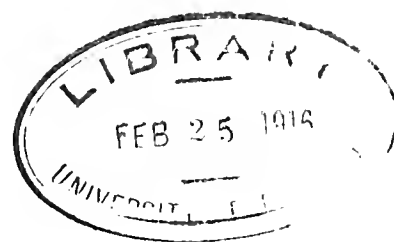
A COURT IN THE PALACE AT SHIRPUR BUILT FOR  
Messrs. SIR ERNEST GEORGE, A.R.A., & CO.





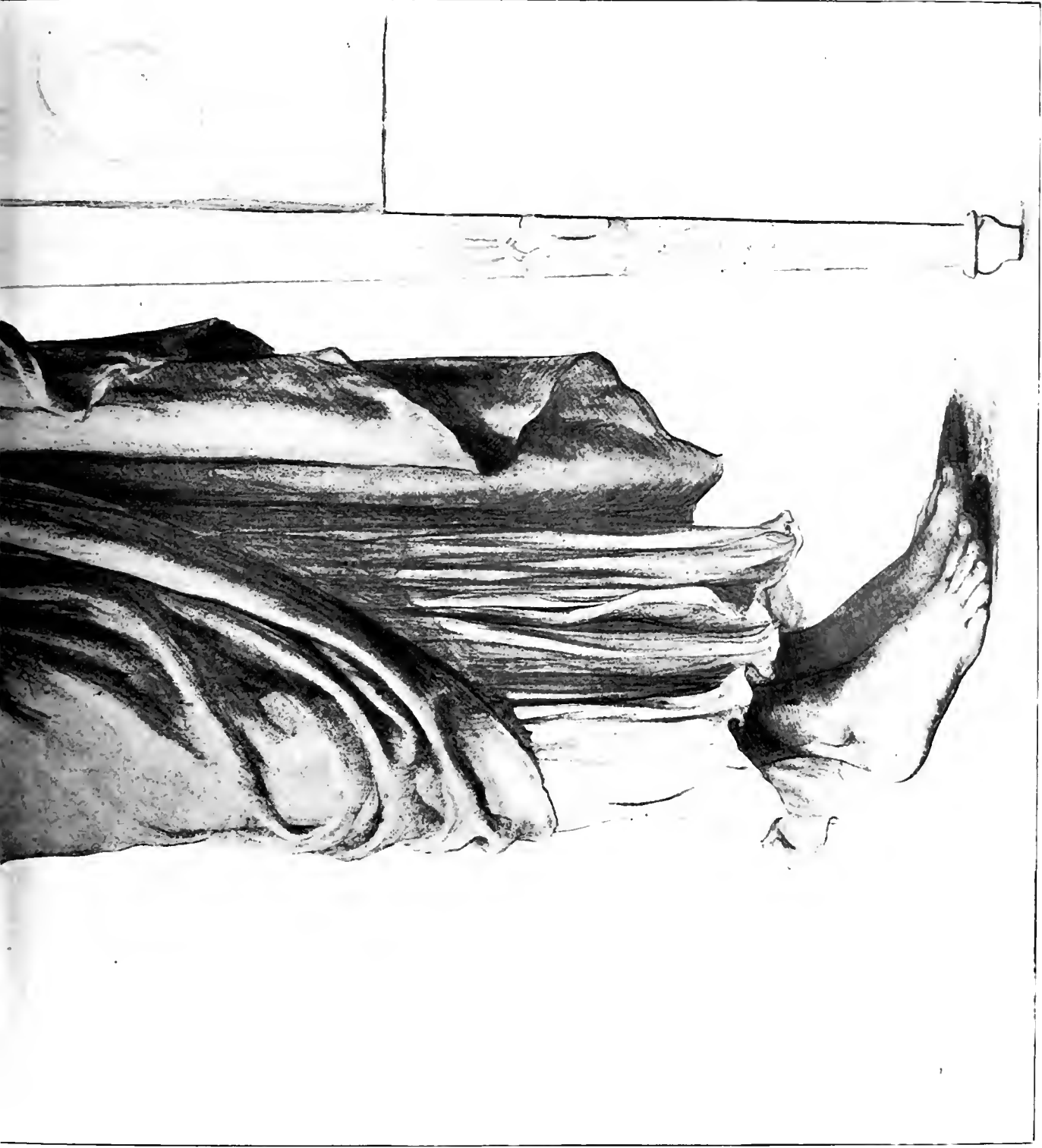
I. THE MAHARAJAH HOLKAR OF INDORE. INDIA.

B. YEATES, F.F.R.I.B.A. Architects.

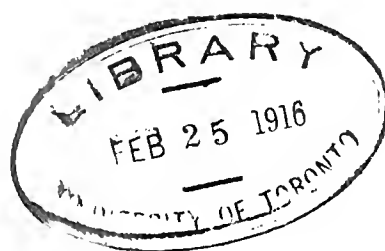








"PANDORA": ROYAL ACADEMY SILVER MEDAL CARTOON COMPETITION FOR A DRAPED  
FIGURE. The Second Design, by Miss CAROLINE HALL.





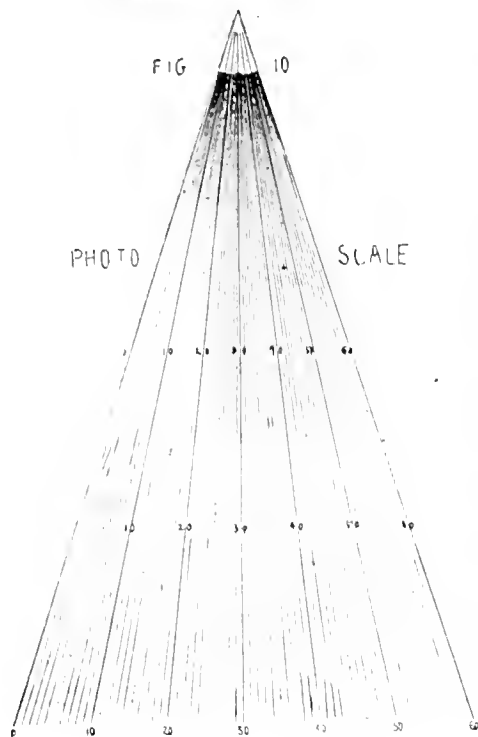


Fig. 10 shows "Photograph" Scale.

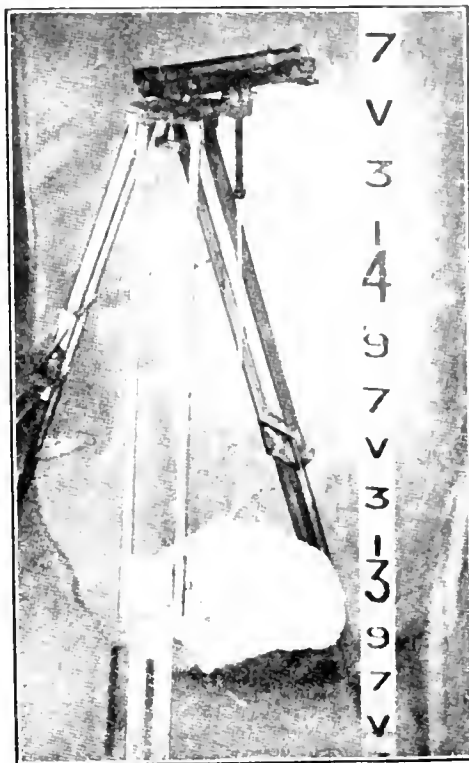


Fig. 11, shows Level and Staff.

"AIDS TO ARCHITECTS' WORK"

Illustrating Paper by ANKETELL HENDERSON (P.P.), M.C.E., Lecturer in Architecture, University of Melbourne

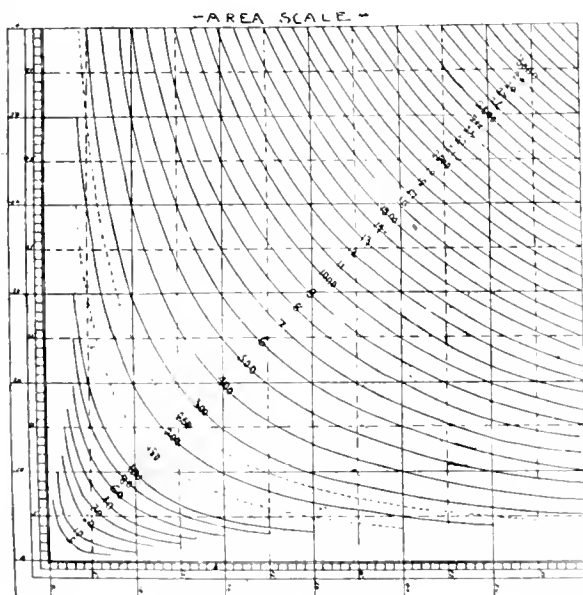


Fig. 7 shows "Area" Scale.

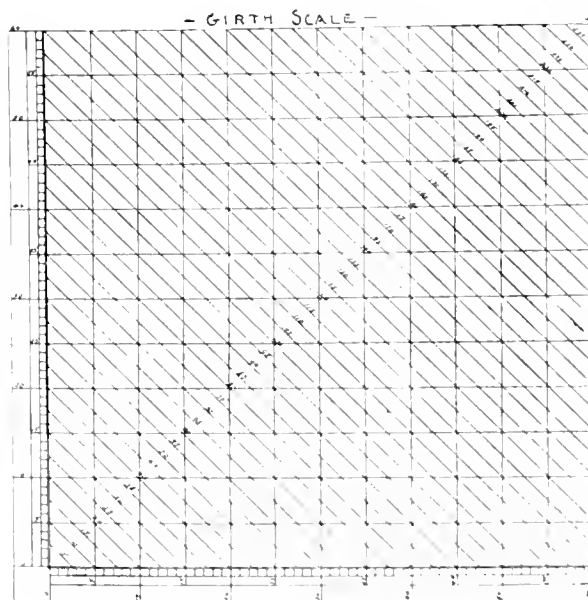


Fig. 8 shows "Girth" Scale.

"AIDS TO ARCHITECTS' WORK."

Illustrating Paper by ANKETELL HENDERSON (P.P.), M.C.E., Lecturer in Architecture, University of Melbourne.

## Corrente Calamo.

Sir Robert Rowand Anderson, LL.D., F.R.S.E., F.R.I.B.A., whom the Royal Institute of British Architects will nominate as a fit recipient of the King's Royal Gold Medal for 1916, is in his seventy-second year and the son of an Edinburgh solicitor. Among his executed works are the new buildings of Edinburgh University, including the McEwan Hall and Medical Schools; the National Portrait Gallery and Museum of Antiquities, Edinburgh; the Central Hotel of the Caledonian Railway Company at Glasgow, Mount Stewart House, Isle of Bute, for the Marquis of Bute; and very many churches of all denominations in Scotland, including the parish church (Presbyterian) at Yoker, a Catholic Apostolic one at Edinburgh, Roman Catholic at Galston, and Episcopalian edifices in Edinburgh, Forfar, Coupar, Kelso, Helensburgh, Cultross, Dumbarton, St. Andrews, and Stirling. He has carried out many restorations, including Dunblane Cathedral, Iona Cathedral, St. Vigean's, Athbroath, and the chapel of King's College, Aberdeen University, and has built many Board schools. He designed the Montrose Monument in St. Giles's Cathedral, and the Bueclough Memorial in Edinburgh High Street. His "Examples of the Municipal, Commercial, and Street Architecture of Italy" was published in 1878. We published his portrait in academic robes in our issue of May 16, 1900.

The land valuation scheme of Mr. Lloyd George's wonderful "People's Budget" of 1909 is the most wretched fiasco of modern finance. At the outbreak of the war the staff of valuers numbered 4,760; of these, 1,000 have been enlisted, 171 have resigned, and 2,600 have been dismissed. There are 969 left. Since Mr. Justice Scrutton's decision was given, the valuation of agricultural land has been made merely in draft, and the papers remain in the district offices. In many counties the offices have been closed, and the men who could settle objections have been dismissed. A large number of estate duty cases are at present held up pending valuations. The present staff cannot possibly deal with the vast number of increment value duty cases, of which there are no fewer than 575,250 unexamined cases in England and Wales, and from 20,000 to 30,000 in Scotland. As to financial results, they are ludicrous. Prior to April 1, 1910, the average yearly increase in the value of the duties was 3 per cent. The increase since up to March 31, 1914, is 6.16 per cent., being an increase due to the new organisation of 3.16 per cent. And this has got mainly out of small owners, the large holders, with considerable areas of undeveloped land, having successfully resisted the collection of the duty.

We trust the forecast given by Mr. George Clausen, R.A., in his very practical speech at the Civic Arts Association meeting at the Mansion House last Friday, is to be realised. He told his hearers that several members of the Royal Academy, including the president, were in sympathy with the objects of the association, and most earnestly hoped that before very long there could be given at the Academy an exhibition of arts and crafts. Certainly, as Mr. Clausen said, the impulse to revive arts and crafts which is now being felt all over the world originated in England; and though our

painting, sculpture, and architecture may be looked upon by foreign artists as nothing out of the way, they agreed that what is interesting and typical in English art is to be found in the work of the small band of men who are reviving and continuing the old domestic arts of the country. One result, so far, has been an uneducated preference for the bizarre rather than for genuine art, to which some at least of our "arts and crafts" exhibitions have, perhaps, contributed. We may confidently expect that the Royal Academy will not encourage displays of that sort, and shall await the exhibition that is foreshadowed with expectant interest.

There has been some correspondence between the Local Government Board and representatives of the building trade in Manchester with reference to the shortage of house accommodation in the city and the immediate neighbourhood. The correspondence has been forwarded by the Local Government Board to the Sanitary Committee of the corporation for their consideration. The Manchester and District House-builders' Association express the opinion that there is an increasing shortage of houses for the working classes, and that the position will be really serious at the conclusion of the war when thousands of men return from the front. The association suggest that steps might be taken now by the Local Government Board which would relieve the position in a large degree, and that an inquiry should be held in Manchester to consider the question of a lack of house accommodation. The Local Government Board, in their reply, pointed to the shortage of inspectors owing to so large a proportion of them being on war service, and asked that the investigation suggested should be deferred to a more convenient period. The results of an inquiry now, it was submitted, might mislead people as to the normal position of the city. A sub-committee has been appointed to consider the points raised in the correspondence and to confer with representatives of the Improvement and Buildings Committee, the Highways Committee, and the Town Planning Committee of the corporation.

After the tremendous upheaval of the war and the ensuing poverty which is bound to come, many who practise art, as it is called, must be prepared to practise it as a serving science or starve. The restriction of the word art to the arts of painting, sculpture, and wall decoration is a misleading one. The description of "artist" as designating a profession is illogical. "I venture to think," says Mr. Sidney H. Hunter in the *Journal of the Imperial Arts League*, "that if the superiority which is supposed to be conveyed by this misnomer to the craftsman working in gold, silver, copper, or iron for the embellishment or decoration of articles of use were done away with, a great deal of false and decadent art would disappear too. The painters of the Renaissance in Florence allied themselves to certain trade guilds for the purpose of being recognised as honest citizens working for their living, although never formed into a guild of their own, and were reckoned socially inferior to a woodstapler or a goldsmith. If in the present day the artist would condescend to consider himself a craftsman in his particular medium of expression, and form with his brethren a strong trade union (for which I consider the I.A.L. is a hopeful nucleus), he content at the outset of his career to serve a long apprenticeship, to work then for a wage, and so prepare himself for independent effort

without being a burden to his relatives, and with hopes of a real competence, if not distinction, then the pretence of art which is so prevalent in many of its professing followers would gradually disappear and a more austere and noble conception would take its place, based upon a humbler but purer view of its mission."

An incidental electric help to builders on the lines we indicated recently is now in use in the United States. Instead of being packed loosely in bulk in a bag the buyer finds his nails nicely and accurately arranged in a box, parallel to each other, so that their removal by hand is a simple matter. Moreover, nails systematically laid in a box occupy little more than half the space required by the old method. The machine for packing the nails is of German origin. Its operation is based upon the principle that linear iron articles when brought into a magnetic field will automatically take a position parallel to the lines of force. The machine consists essentially of the electric paralleling mechanism, a feeding trough and a shaking device. By means of the latter, the nails glide gradually into the paralleling mechanism and while still falling are drawn in the direction of the lines of force. The nails are passed into a tray fixed between the two magnetic poles, and at intervals the tray is pressed downward and the contents emptied into boxes. With but little adjustment the machine may be made to handle any size of nail. The paralleling mechanism uses direct current at 110 or 220 volts pressure.

Mr. E. W. Jones, surveyor to the Frome Urban District Council, has been appointed borough surveyor of Stratford-on-Avon.

The board of management of the Edward VII. Hospital at Cardiff have under consideration proposals for its extension, at an estimated outlay of £46,500.

New schools are being built in Hemsworth Street, Belfast, from plans by Messrs. Young and Mackenzie, of Scottish Provident Buildings, in that city.

An hotel, estimated to cost \$10,000,000, is to be built at the Grand Central Station in New York. The architect is Mr. Beverly S. King, 103, Park Avenue, New York.

The urban district council of Ilam, near Manchester, have adopted plans by their surveyor for carrying out improvements at the sewage farm. The outlay will be about £15,240.

Mr. Herbert Baker, architect for the central buildings of New Delhi, who has been indisposed since his return to India, has now, we are glad to learn, recovered sufficiently to resume his duties.

Three housing loans to the corporation of Dublin have been sanctioned by the Local Government Board, viz., £3,341 for the McCaffrey Estate, £15,750 for the Fairbrother Field area, and £7,100 for the Spitalfields area.

In St. Mark's Church, Peterborough, there has been unveiled a memorial window erected to the memory of the late Miss Willoughby. The window, which is inserted in the north aisle, represents the visit of the Magi to the Infant Saviour.

A Local Government Board inquiry will be held at Neath, Glam., to-day (Wednesday) before Mr. Meade King, into an application of the corporation for sanction to borrow £5,100 for street improvements in Gas Works Road and Llantwit Road.

The education committee of Norwich have agreed to give up a strip of land, 485 yards in length, and of an average width of 10 ft., being part of the Clare House Estate, for the purpose of widening Constitution Hill, all costs to be borne by the Corporation.

Mr. Charles Lynam, F.S.A., of Cliff Bank House, Stoke-on-Trent, who has just been placed on the list of Retired Fellows, was admitted a student of the Royal Institute of British Architects in 1847. He was elected as a Fellow in 1882. Mr. Lynam is in his eighty-seventh year, and enjoys almost complete exemption from bodily infirmity.

# SLAG PORTLAND CEMENT MANUFACTURED FROM BLAST-FURNACE SLAG.

At the conclusion of a very useful paper on Portland cement before the Institute of Engineers and Shipbuilders in Scotland, Mr. J. B. Day, the author, said: While dealing with the question of the manufacture of Portland cement, it may perhaps not be out of place to mention the possibilities that lie dormant in the waste products that are accumulating daily, to the inconvenience of blast-furnace owners of this greatest of manufacturing centres of the Empire. The writer refers to the possibility of manufacturing a first class Portland cement from blast-furnace slag. All who are interested in collieries are well acquainted with, and many have adopted, the highly remunerative methods of the Germans for dealing with what a few years ago was almost a by-product of the collieries, but which during this present war has proved of incalculable value to them. As with collieries, so with blast-furnaces. Attention has been turned to utilising the waste slag from the furnaces to make what is known as slag Portland cement, or in Germany Eisen Portland cement. Not only is a valuable by-product obtained for which there is a definite market, but also valuable tipping ground is saved. In Germany this industry has attained large proportions; not only have special markets been created for this product, but the Germans have also built up special industries to still further extend the use of this by-product. Many patents have been taken out covering various processes for manufacturing cement from blast-furnace slag, some of these aiming at producing an article little better than hydraulic lime. In these days, however, in the writer's opinion, the only way to meet competition is to manufacture the highest class of material at the lowest cost. This, however, involves manufacture upon a fairly large scale. While slag Portland cement is not quite as good as the best Portland cement, and consequently commands a lower price, it must be remembered that the raw material in the ordinary course of events is not only a waste product, but costs manufacturers in some cases a considerable sum annually to dispose of. Moreover, the cost of power when the gases from the blast-furnaces are available is a negligible quantity. Further, owing to the fact that the lime in the slag occurs as an oxide and not as a carbonate, less fuel is required in the kiln; in fact, on a 1,000 tons per week plant 250 tons less coal per week would be used on a slag Portland cement plant than on a true Portland cement plant using limestone and clay.

The article produced in the most up-to-date process, while not complying strictly with the British standard specification for Portland cement, can, with care, be made to closely approximate to it.

In order to treat blast-furnace slag, they should first of all be granulated. The effect of granulating the slag is to cause it to split up into fine sand-like particles; it also has the effect of removing a large percentage of sulphur and increasing the hydraulic properties of the slag. This granulated slag is then mixed with limestone in the correct proportion, ground and burnt in the kiln, the resulting clinker being again ground to form cement. The chief difficulties that occur are the varying composition of the slags. The composition naturally depends upon the analysis of the ore; in fact, the slag from certain ores are not suitable for the manufacture of cement. Failures of certain plants have been due to the preliminary investigations not having been sufficiently carefully carried out in this respect. The following analyses will give some idea as to the extent of variation of slags:—

	1	2	3	4	5
SiO <sub>2</sub> .....	30.00	30.72	32.51	32.90	31.5
Al <sub>2</sub> O <sub>3</sub> .....	28.00	16.40	13.91	13.25	18.53
Fe <sub>2</sub> O <sub>3</sub> .....	0.75	.43	.48	.46	—
CaO.....	32.75	48.59	41.75	47.30	42.72
MgO.....	5.25	1.28	2.20	1.37	3.18
CaS.....	1.99	2.16	4.30	3.42	—

Whilst 2, 3, and 4 are suitable for use, Nos. 1 and 5 are not so suitable.

It is essential that the greatest care be taken to accurately proportion the raw mix-

ture. Special provision must be made for this purpose in all plants. Again, granulated slag is a difficult material to grind finely. Failure to appreciate this fact, and to provide satisfactory grinding plant, is also a frequent cause of trouble. The burnt clinker, when ground, probably owing to its high alumina content, is found to be naturally extremely quick setting. This, however, can be readily adjusted, so that any specified setting time can be obtained.

The manufacture of slag Portland cement is usually carried out on the dry or semi-dry process in rotary or vertical kilns. In conjunction with some clients, the writer has lately been carrying out experiments with a view to manufacturing on the wet process. So far these experiments give every promise of success, and should eliminate certain difficulties that occur in other processes. As mentioned above, while slag cements do not comply with the British standard specification for Portland cement, the following figures, obtained from tests in the writer's laboratory, give an idea of the chief features of a good Portland cement, as manufactured at Aberthaw, and a slag Portland cement, as compared with the British standard specification:—

British Standard Specification for Portland Cement.	Aberthaw "Druid" Brand Portland Cement.	Slag Portland Cement.
Neat (a) 7 days	450 lbs., 40,000	644 lbs., 623 lbs.
Tensile (b) 28 days	$\alpha + \frac{40,000}{\alpha}$	783 .. 729 ..
Sand (c) 7 days	250 lbs., 10,000	283 .. 207 ..
(d) 28 days	$\epsilon + \frac{10,000}{\epsilon}$	382 .. 280 ..
Specific gravity ..	Not less than 3.1	3.203 2.96 ..
Expansion ..	—	.66mm. 1.5 mm.

In view of the fact that the price of Portland cement is about £2 per ton in Glasgow at the present time, it would appear that this is a subject worthy of the consideration of every blast-furnace proprietor.

## COHESION IN EARTH: THE NEED FOR COMPREHENSIVE EXPERIMENTATION TO DETERMINE THE COEFFICIENTS OF COHESION.

By WILLIAM CAIN, M.Am.Soc.C.E.

### SYNOPSIS.

The ordinary theory of earth pressure pertains to a granular material, such as clean sand, gravel, or rip-rap, supposed to be endowed with friction only. For ordinary earth, and particularly with clay, experiments given show that, in addition to friction, the earth is endowed with cohesion, and the practical importance of determining experimentally the simultaneous coefficients of friction and cohesion for every variety of earth is earnestly urged.

The results of the few experiments made on various earths and clays are given, and attention is called to the small values of the coefficients of friction and to the large values of the coefficients of cohesion in the case of consolidated earth and clay.

Harking back to the laws of friction and cohesion, first formulated by Coulomb, a simple form of apparatus for experimenting is given to illustrate principles, though it is realised that when the earth is subjected to great pressures, a more complete testing machine is desirable. In fact, a standard machine to which engineers could send samples of the earth to be tested seems desirable.

The results of the more recent experiments made, in both France and England, are, in some respects, so unexpected and significant that a mere glance at the figures will show the immediate need of a comprehensive system of experimenting not only to determine the true laws of friction and cohesion of earth, but likewise to determine the coefficients of friction and cohesion for ordinary earths and clay, in various stages of consolidation.

Coulomb, about 1780, was the first to formulate the laws of friction and cohesion, as

A paper to be presented to-day (February 2) at a meeting of the American Society of Civil Engineers,

affecting a mass of earth. For a homogeneous earth these laws may be stated thus:

(1) The maximum "frictional" resistance that can be exerted along any portion of a plane in the interior of a mass of earth equals the normal pressure,  $P_n$ , on the portion of the plane considered, and  $\mu$  is  $f P_n$ ,  $f$ , the coefficient of friction, where  $f$  is a constant for the earth considered.

(2) The maximum cohesion equals the area of the portion of the plane considered, multiplied by  $k$ , the coefficient of cohesion, or cohesion per unit of area, where  $k$  is a constant for the particular earth in question. Thus, if  $A$  denotes the area of the portion of the plane under compression and  $Q$  the total resistance to sliding along this interior plane, then,

$$Q = P_n f + k A \dots \dots \dots (1)$$

A great number of experiments have been made to determine  $f$ , the coefficient of friction for various materials, on the supposition that  $k$  was either zero or negligible; but very few have been made to determine, at the same time, the coefficients of cohesion.

A limited number of experiments, with this object in view, have been made by Collin (1846), Leygue (1835), Jaquinot and Frontard (1910), and A. L. Bell (1914). With the exception of Collin, the experimenters determined the coefficients,  $f$  and  $k$ , from the same set of experiments. Although the apparatus used by one experimenter was not the same as that used by any other, yet, in principle, the following simple device can be supposed to represent the method of experimenting. In Fig. 1 a thin slice of earth is

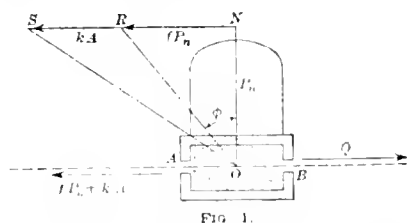


FIG. 1.

supposed to be placed between two metallic plaques, which are rough on the inside. These are then firmly pressed together, but without contact, and the resistance to the relative displacement of the two plaques is then measured.

Suppose the pressure to be due to a weight, and let  $\mu$  represent the sum of this weight, and that of the earth and plaque above the horizontal plane of shear,  $AB$ ; also, let  $Q$  be such a horizontal force applied (through a cord) to the upper plaque in the plane,  $AB$ , that sliding of the earth above the plane,  $AB$ , over the earth below it is "impending," which means that the slightest increase in  $Q$  would cause actual sliding. The earth along the plane,  $AB$ , of the area,  $A$ , resists the force,  $Q$ , by the friction and cohesion acting to the left along  $AB$ ; hence, for equilibrium, at the instant motion is impending, we have

$$Q = f P_n + k A.$$

The normal reaction of the earth just below the plane,  $AB = P_n$ ; hence, if  $O N = P_n$  is laid off vertically upward, and  $N R = f P_n$  and  $R S = A$  are drawn horizontally to the left, then  $N S = f P_n + k A = Q$ . Also, if  $\phi$  denotes the "angle of friction" of the earth, then  $f = \tan \phi$ ; so that the angle  $N O R = \phi$ . Note carefully that, in earth endowed with both friction and cohesion, coherent earth, as it may be styled the "angle of friction" is not the surface "angle of repose." The latter is always greater than  $\phi$ , a definite mathematical relation existing between the two angles and the depth of a bankment.

If we designate by  $p_n$  the normal pressure per square foot on the plane,  $AB$ ,  $f$  by  $\mu$  the total resistance to sliding per square foot of the plane, then, by dividing both sides of the preceding equation by  $A$ , we obtain  $q = f p_n + k$ , putting,  $\phi = k \dots \dots \dots (2)$ , where  $q$ ,  $p_n$ , and  $k$  will be expressed in tons, or pounds per square foot, according as  $Q$  and  $p_n$  are expressed in tons or pounds.  $A$ ,  $k$  and  $\tan \phi$ , for any particular homogeneous earth, are constants,  $f$  the variable normal unit pressure,  $p_n$ , is laid off, from the origin,

along the axis of abscissas, then the corresponding value of  $q$  can be represented by an ordinate, and the equation is that of a straight line, making the angle,  $\phi$ , with the axis of abscissas and cutting the axis of ordinates at the distance,  $k$ , above the origin. From the results of the experiments, simultaneous values of  $pn$  and  $q$  can be plotted and an average line drawn; otherwise, corresponding experimental values of  $pn$  and  $q$  can be substituted in an equation of the foregoing type, and, from the resulting equations, the most probable values of  $\tan \phi$  and  $k$  can be found by the method of least squares.

(To be continued.)

## Correspondence.

### SAINT MOGUE.

To the Editor of THE BUILDING NEWS.

Sir,—St. Mogue, or Aidan (1st Bp. Ferns, A.D. 598; Feastday, January 31), and Irish Art and Antiquities.

"He [St. Patrick] built a Christian temple in a lovely Crammoge Isle, And piety and learning shed around their choicest smile."

For St. Aidan here was nurtured, and a seat of learning blest.

The race and land of Tullyhaw, a beacon in the West."

—Unpub. poem by the late Rev. R. Leech.

In the galaxy of Hiberno-Keltic saints the name of St. Mogue, or Aidan, holds a prominent place. He was born on the Island of Inch, or Inis Breachmigh, in Templeport Lake, near Ballymagauran, Parish of Templeport, Tullyhaw, Co. Cavan, about the middle of the sixth century. His father, Sedna, was ninth in descent from Colla Uais, King of Island, A.D. 336. The saint's name signifies "Fire," and before he was born a fiery star hovered at night above the home of his parents. Ethna interviewed a seer gifted with prophecy to account for the omen. The sage said: "As a star led the Wise Men to worship Christ, and by the same star it is thenceforth that a son shall be born to you, full of the fire of the Holy Ghost." St. Mogue's holy life fully bore out the correctness of same. He was for several years in the monastery of Clonard before taking up his abode with St. David of Wales, and subsequently returned to Ireland, where he was the means of building numerous churches and monasteries.

A legend records that on a certain occasion St. Mogue was about to erect a church, but could not obtain the services of an architect, and placing his trust in God he blessed a gentleman named Gobhan, who became gifted with the talents and professional training of a high-class architect and supervised its erection in an able manner. The said monasteries became seats of learning, to which the youths of Britain and the Continent flocked to get educated. The "Monastic Scriptorium" formed an important part of their construction, wherein choice illuminated MSS. were prepared.

Professor E. C. Quiggan, University of Cambridge, is exercising his abilities in unearthing and transcribing some of the old bardic poems of Banba. In Vol. 5 of the "Proceedings of the British Academy" for 1911 under Prolegomena to the Study of the later Irish Bards, 1200-1500, he states that the earliest collection of family poems now in existence is probably the "Book of the McGovern, or MacGaurans," and fourteenth century vellum in the possession of the O'Connor Don. The erudite professor says in an addenda that one stanza affords the only literary evidence with which he was acquainted, that the better-known families maintained books in which eulogies of their race were entered, and that the "Magauran Book" was transcribed for Thomas Magauran (Rig Thathia, Tribe King, who died A.D. 1343), according to the "Four Masters," by Aidan O'Cianan. Professor Quiggan intends to publish the whole of the MSS., but will visit the "locus in quo" again to familiarise himself with the topography of the barony. The McGovern were the hereditary custodians of the Iron Bell of St. Mogue, and

its shrine, which are in the custody of the Anglican Primate of Armagh (see "Proceedings of Antiquaries," London, June 15, 1865). St. Laoerein, an early friend of saint, presented him with a most exquisitely wrought bronze figured shrine, containing the relics of the Holy Martyrs SS. Peter and Paul, and also those of SS. Clement, Lawrence, and Stephen, and mementoes of the Blessed Virgin. The Breac, Moedog, or speckled shrine, is very like the chasses, or shrines, of Lemoges, but of much later date. Miss M. Stokes conjectures in her "Observations" on the subject, Vol. 43 "Archæogine" (London Society of Antiquaries), that it is not improbable that the form of an early church or oratory was intended to be reproduced by these early shrines. See also "Shrines of British Saints," in both of which works the architectural student will find much to interest him in Irish ornamentation (viz., interlacing of knotwork, birds, etc.) and antiquities. —Yours truly,

JOSEPH HY. MCGOVERN,  
Lic.R.I.B.A.

Liverpool, January 25, 1916.

### OBITUARY.

Mr. William Whymper, A.R.I.B.A., of 10, Gray's Inn Square, W.C., elder son of Mr. W. N. Whymper, of Long Ditton, died on Friday, at Esher, of heart failure, aged thirty-two years. He had been an Associate of the Royal Institute of British Architects since 1912, and was a student for four years previously. The funeral took place at Long Ditton Church yesterday (Tuesday) afternoon.

Mr. Charles Frederick Mitchell, Headmaster of the Technical Day School of the Regent Street Polytechnic for twenty-five years, died at Acton on Friday, at the age of fifty-six years. He will be remembered by builders and students of architecture through his well-known text-book on "Building Construction for Elementary and Advanced Students." He had been associated with the Polytechnic from its earliest days, when it was founded by Mr. Quintin Hogg in Endell Street. He was a brother of Mr. Robert Mitchell, Director of Education at the Polytechnic.

In Barcelona the builders' hands declared on Monday a general strike in sympathy with the masons, who have been on strike for three weeks.

Mr. H. V. Lancheater, V.P.R.I.B.A., town-planning adviser to the Madras Government, has delivered a course of twelve lectures on town-planning during January at the Madras Engineering College.

The partnership hitherto subsisting between Messrs. B. H. Newby and R. Worcester, architects, surveyors, and valuers, at Market Street, Manchester, under the style of Newby and Worcester, has been dissolved.

The rural district council of Mayfield have appointed Mr. Norman D. Preston, assistant surveyor to the rural district council of Burnley, to the position of surveyor in place of Mr. Luther Adams, who has received a similar appointment at Prestwick.

The committee engaged in providing additional hospital accommodation at Bradford for wounded soldiers have approved a scheme estimated to cost £15,500. The buildings include a mortuary, post-mortem room, and the enlargement of the stores. Mr. Holland is the architect.

Mr. R. C. Brown, deputy burgh surveyor to the town council of Helensburgh, has been granted a commission in the Royal Engineers, and Mr. R. C. Ross has been appointed to fill the position. Mr. A. Peddie has been appointed deputy sanitary inspector during the absence on military service of Mr. Stirling, burgh surveyor.

A new industry is about to be started at Ellesmere Port. The site for the new works is to be on the estate of the Ship Canal Portland Cement Company, extending in all to just over sixty acres, and the land being immediately acquired is about six acres. The land is now being pegged out. The new industry will have the benefit of a large wharf on the Ship Canal, inland canal private wharf to the Shropshire Union Canal, and private sidings to the London and North-Western Railway.

### COMPETITIONS.

DUNDEE.—In connection with the extension and alterations of Harris Academy, Mr. Alexander N. Paterson, Glasgow, the assessor, has placed his award as follows:—(1) Mr. W. B. D. Keith, L.R.I.B.A., 10, Whitehall Street, and 15, Castle Street; (2) and (3) Messrs. McLaren, Sons, and Soutar, architects, 10, Reform Street; (4) Mr. James Findlay, architect, 33, Albert Square, all of Dundee. It was accordingly agreed that Messrs. McLaren, Sons, and Soutar, be paid the premium of fifty guineas, and Mr. Findlay the premium of thirty guineas.

LUTON.—At a meeting of the Bedfordshire Education Committee the report of the special committee with respect to the designs for a new secondary school at Luton was submitted, and it was stated that the plans of Messrs. J. R. Brown and Sons, of Luton, had been accepted by the Board of Education.

### PARLIAMENTARY NOTES.

PAPER IMPORTS TO BE RESTRICTED.—Mr. Partridge (L., Shipley) asked the President of the Board of Trade, on Thursday last, whether he could make any further statement as to the steps to be taken to deal with the shortage of available shipping tonnage, especially as regards restricting the import of bulky materials, such as paper-making material. Mr. Runciman (President of the Board of Trade): Since I last made a statement in the House on the subject of the tonnage problems with which we have to deal the Government has decided to relieve the pressure by cutting down some of the imports less essential for national existence which at present occupy space in vessels arriving in our ports or prevent these vessels being used for more urgent purposes. Paper pulp and grass for the making of paper have been the first subject for the operation of this policy of reducing our imports because of its great bulk and influence on tonnage. The imports of paper and paper-making materials amount in weight to over 1,600,000 tons in the course of a year and approximately 2,000,000 tons of space in the ships which carry them. The import of a large percentage of this large total will shortly be prohibited, and the tonnage thus set free will be available for the carriage of foodstuffs, fuel, or other essential supplies. I have been in conference with the paper makers and the newspaper proprietors, and, recognising the urgency of the national need, they have given us the benefit of their views, and we can, I feel sure, rely on their loyal co-operation in a step which, while unavoidable, must of necessity interfere with their business and that of all paper-users. A full statement of the precise methods to be applied for carrying out this policy will be made public as soon as possible. Sir R. W. Essex: In the allocation of home supplies of raw paper-making pulp, has the right hon. gentleman borne in mind the fact that possibly, unless he has forecasted the peril, this may act adversely on certain newspaper proprietors who have to rely on the products of markets other than those under their own control, while it will help other newspaper proprietors who have their own private mills? Mr. Runciman said he hoped any arrangements made would not give an unfair privilege to anyone. Sir C. Wagner (L., Lichfield): Does the right hon. gentleman's answer include wall-paper manufacturers? Mr. Runciman: If the Wall-paper Makers' Association would like to see me I am at their service.

Mr. James Mackenzie, of Nairn, has been appointed burgh surveyor of Nairn, in succession to Mr. D. D. Macleay, resigned.

A receiving order has been made in the case of William John Edwin Wilson (trading as Wilson and Co.), Queen Street, Cheapside, contractor, lately trading as the Morgan Stephens Asbestos Slate Company at Victoria Street, Westminster.

Mr. David Parkinson Garbutt, of Wyton, Huddersfield, formerly a builder and contractor, some time a shipbuilder and afterwards a farmer, who died on November 15, left estate valued at £33,574 gross, with net personally £2,161.

A new post-office has been erected at the top of Warwick Road, Carlisle, close to the Citadel station and the old G.P.O. It is of three stories, with a frontage of 120 ft. and a depth of 300 ft. The building, which has a front faced with stone, cost £30,000.





A new technical school, built at the rear of the Old Town Hall in Brand Street, Hitchin, has just been opened. Mr. Walter J. N. Millard, A.R.E.B.A., of Gny's Inn Square, W.C., and Hitchin, is the architect, and the builders were Messrs. J. Wilburt and Sons. The cost has been £3,400.



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

Edinburgh House,

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### ADDITIONAL FLOORS FOR FACTORIES.

The extension of factory premises vertically is a means of adding floor area to works that may be taken advantage of on occasion with relatively little expense. All depends upon whether the owners of the property had the forethought to leave the construction of a nature suited to such enlargement. Given sound brickwork of sufficient thickness to enable the upward extension to be made, leaving the walling within the dimensions prescribed by the Act, much may be accomplished not only in the way of vertical extension, but in improvement and remodelling.

Take the case of an old factory which the owners desire to convert into larger premises. Figs. 1, 2, and 3 are plan, section, and elevation of the new factory, having the old arrangement indicated thereon. They consist of two stories in one part, and on one side a one-story building originally covered by a steel-framed roof, and the proposals embrace the conversion of the whole into a building of three floors, as shown in the section and elevation. The building as completed is 86 ft. by 42 ft. 6 ins., thus adding a new works area of 23 ft. by 42 ft. 6 ins. (the portion over old store and offices) and 82 ft. by 42 ft. 6 ins. (the new complete second story). Thus, to an existent area of 1,835 sup. ft. is added, by the proposed remodelling, 4,265 sup. ft. The extra area thus made available is considerable, and, relatively, inexpensive. Examining the conditions existent in the old premises, a fireproof staircase (1) originally existed, but when the new proposals for modification are completed this will not be in quite the most convenient position. It intrudes inconveniently on the clear works space and stops a through run of shafting and orderly sequence of machinery. Again, the old store premises we assume are not now required, so that the whole floor area will be available for active work and manufacture. The heating of the premises we assume to be either wholly wanting or inefficient, so that our new plans will include a new boiler and heating pipes and radiators, the arrangements for which may safely be left in the hands of such firms as Haywards, Ltd., Union Street, Borough, or F. A. Norris and Co., Ltd., St. Andrew's Hill, London, E.C. The offices, originally located below, may, if a lift is provided, be quite conveniently located on the top floor of the new premises. We will therefore arrange a lift behind the new fireproof stairs. It may be that, in the case of motor-car repairs, a car lift will be required, and our new scheme includes, or suggests, a convenient spot for this con-

venience, which, naturally, takes rather a considerable area of floor space.

The entrance as existing is on the right side, and may, as one entrance, conveniently so remain. The sanitary accommodation (originally three w.c.'s) must be rearranged to suit by-laws, a *pro rata* allowance being made for the added number of hands that will be engaged when our new floors are completed. Also, the question of fireproof and fire-escape stairs is of urgency, and must receive attention, generally in accordance with the principle discussed in our recent article on fireproof stairs for factories.

The new scheme embraces the idea of a clear, open factory space on three floors.

The old plan has cast columns, and the floor joisting and girders are rolled steel carrying timber joists. It does not necessarily follow that the steel girders are not suited to carry a 4-in. concrete floor; for we are to understand that our new factory premises are to be fireproof or of fire-resisting materials. Assuming that the original floors were constructed for a superimposed load of 224 lb., or, say, 156 lb. per ft. super, there is every likelihood that sufficient margin may have been originally provided to render it feasible to put in concrete floors, in which case a floor reinforced with B.R.C. Fabric has much to recommend it. The cross wires of the B.R.C. Fabric provide a reinforce-

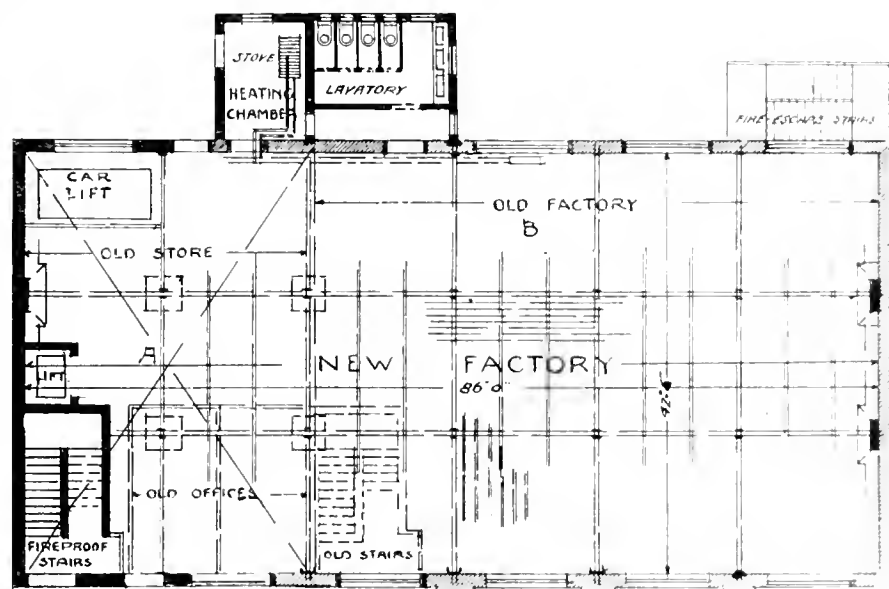


FIG. 1.

The forethought of the original builders has provided 18 in. main exterior walls at the base of the building, and as these are found to be solid, we obtain a secure substructure for the building of the new factory. The Acts must be consulted with reference to this matter, so that the new building may have factory-type walling sufficiently thick and the pier areas may be suited to the concentrated weights. The wall round the one-story building is only 14 in., so we must study this point in the same light. The steel construction of the roof over the existing building must be swept away, but the steelwork, girders, joists, and pillars existent in the two-story part must be studied, as either considerable expense or considerable saving will attend the actual course followed.

ment particularly efficient in preventing cracks due to changes of temperature and weather.

On the other hand, a quick inspection of a constructed floor such as the one suggested claims consideration. The S. & W. Co. are made in this country, and many of the works in a natural concrete floor have only to be put in place and grouted together, when ready for use. No cement is used in the work involves no heavy tractors.

Our elevation shows the building to be erected on a foundation here is assumed to be 15 ft. S. The strengths will be ample for the work of carrying the superimposed and concentrated loads at points. The design

work is cut into for the new windows, which are extended in width beyond the ones originally provided, and for new loophole doors. The old one-story building has new walling throughout, and the piers added to carry girder-ends have new foundations cut down. Either such brick piers may be provided or steel stanchions arranged; in either case the piers or stanchions must be carried on satisfactory foundations, the old work being con-

The constructional features of the building include ferro-concrete lintels, and all the openings to stairs, etc., are similarly covered. The flat roof is asphalted, and all the copings are simple brick-on-edge and tile creasing. Where the asphalt stops against copings, etc., the brickwork is cut into and chased for suitable flashing in the same material. The finishing internally of a building of this character is by ordinary striking of the brick joint,

and interstices, but also bond the surrounding particles in a much firmer adhesion than is ordinarily obtained with Portland cement alone.

This manner of topping produces a floor that, in addition to being absolutely impenetrable and non-absorbent, is as near to being wear-proof as it is possible to make it. Such a floor will resist almost any crush power and tensile strain. The "Ironite" Co., Ltd., of 11, Old Queen Street, Westminster, S.W., will send full particulars.

The "Trus-Con Floor Hardener," put on the market in this country by the Trus-Con Laboratories, 19, Central House, Kingsway, W.C., is another excellent material for the purpose. By sprinkling the specified amount of Floor Hardener over the floor topping prior to its final trowelling, an armour-like surface is produced which is so impenetrable that it can neither dust nor wear. Trus-Con Floor Hardener involves very little additional labour expense, only a very small amount of the product itself, and requires no skilled superintendence.

All the steel pillars are H stanchions, and the loads of floors, both live and superimposed, will be found to be well carried by ordinary H joists, no compound girders being necessary. Each bay has, say, 15 in. by 7 in. main joists, and 9 in. by 5 in. subordinate joisting. We have assumed that the old girders and stanchions are of suitable strength to carry the several loads brought to bear by the rearranged plan of premises. It will be seen from the plan that a certain number of new pillar supports are needed, and these are provided with new foundations carried to the same depth as the existing ones.

Whether, in remodelling factories on the lines of our present scheme, the old walls should be cut into for brick piers, or new steel stanchions provided, is a matter requiring considerable judgment. Where the old brickwork is sound the method of cutting away and bonding new work answers every purpose, giving strength to the walls at points of concentrated loading. Where the old work is of doubtful character the practice of new steel stanchions is one that will commend itself; and such affords, by means of bolts and

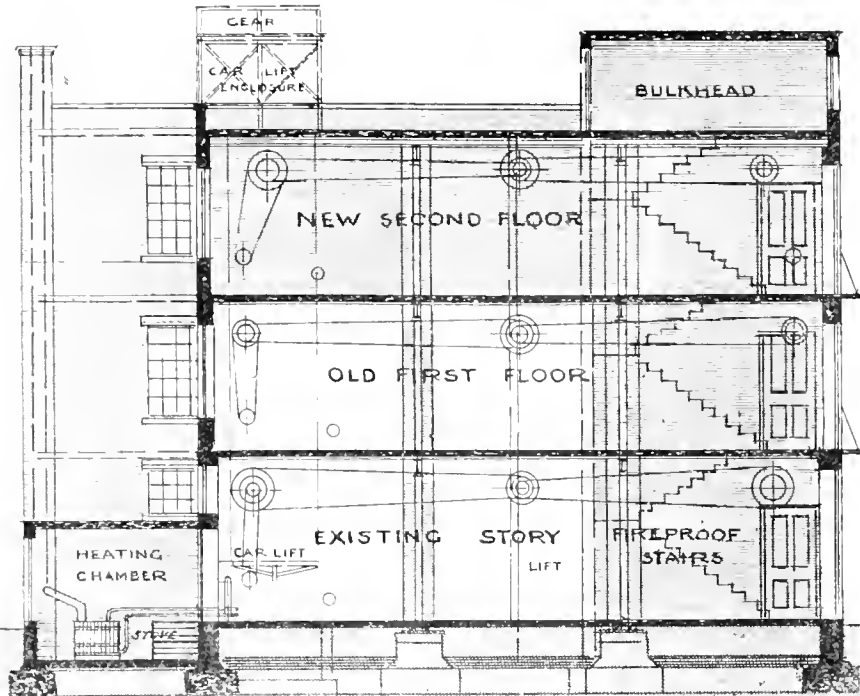


FIG. 2.

sidered untrustworthy. All the new floors are carried by steel joists and cross-joists, and have 4 in. concrete and steel mesh, or lattice reinforcement.

The old work we indicate in cross-hatched lines, the new in black. The position as rearranged for the fire-proof stairs leaves a clear factory run—straight lines of shafting and correct and consistent alignment for machinery, a very considerable point in factory planning. The old door entrance to works on left is retained, and a new door opened on the right. The passenger lift is arranged behind the fire-proof stairs, and the car lift in corner of building as shown. The latter has an access to the roof, which is a good place for car storage, and the arrangement would prove useful in any kind of business, the flat roof forming a useful addition to total floor area.

The new heating chamber is sunk below ground floor level, and has a hot water boiler and the flow and return pipes and one radiator are indicated. A necessary equipment in some convenient corner will be a water storage tank.

The fire-escape stairs are arranged at the back of the building, as shown; they are the usual iron and steel construction, and should be carried up to give emergency access to the roof flat. Much convenience at times attaches to the use of these stairs for inter-communication between floors. In our scheme, however, inasmuch as the inventories are carried up the full factory floor heights, these stairs are not required for such purpose.

The machinery for each floor has separate motor drive, as generally indicated on the sectional drawing. This has many advantages over a general drive from one electric motor, and in no way reduces, practically, the economy in use of current.

and limewhiting or distemper. A suitable sill for factories is composed of plain tiles, laid in two courses and bedded and pointed in cement, the internal sills being in plain brick bullnose. The window casements are of steel, which now may be obtained in many designs and varied styles of opening. The upper part of such windows would open backwards for ventilation. The floors are paved in some suit-



FIG. 3.

able hard faced cement flooring, such as "Ironite," or the "Trus-Con Floor Hardener." The under side of the concrete is simply skimmed for a ceiling, and limewhitened or distempered.

"Ironite" flooring is designed to be mixed with cement and sand for the floor topping. In the process of setting, by reason of the chemical action which takes place, the particles of "Ironite" flooring not only expand and tightly seal the pores

plates, a better and more homogeneous throughout the building. A preliminary survey of the old premises is the best method of settling this point. Some old work, such as waterlogged mortar brickwork, is found to be exceedingly tough, and where such exists the use of stanchions, externally, is not indicated. Much of this class of old brickwork is sound below ground-floor level and decayed above; in this case the bonding of new

brick-pier foundations will be easy and results trustworthy; but it will be desirable to put, above, the steel stanchion in place of brick pier. We have indicated places where the old brickwork is strengthened and others where the steel props are introduced.

Where the main girders which run longitudinally about on the end walls, strength is required at the support. Hence we have indicated the provision of such. Where the tie-joists (across the building) are brought into the main front and back walls, there is little load, so that a very light steel post will here suffice. The same observation applies to the cross joists that carry the concrete reinforced flooring.

The building has two loophole doors and a jib-crane, bolted and secured to the brickwork. The means of hoisting and elevating are thus three: the two lifts and the crane.

The provision of a passenger lift makes it feasible to put the offices—heretofore located on the ground floor—on the top-most story, and such would be arranged close to the position of the lift. Our plan generally indicates the arrangement on all floors. The old work, as the existent fire-proof stairs, is indicated by dotted lines.

#### DILAPIDATION PRACTICE: SOME NOTES AND SUGGESTIONS.\*

By CHARLES F. SLATER, F.S.I.

Twenty-nine years ago, in the session of 1886-7, two papers were read and discussed in this institution on the subject of Dilapidations. That on the legal side was read by Mr. T. W. Wheeler, K.C., now his Honour Judge Wheeler; that on the practical side by Mr. Philip E. Pilditch. I wish to draw particular attention to the *Transactions* in which these papers and the discussions upon them appeared, because taken collectively they form a most useful groundwork for the study of a somewhat involved subject. They occupy four parts of *Transactions*, parts 8, 9, 10, and 11 of vol. xix. Soon after they were read, I had them bound up in one volume, together with a very useful and illuminating paper on Ecclesiastical Dilapidations, read by Mr. G. R. Crickmay a few years earlier (vol. xiii., part 7). To my mind great value attaches to these publications, firstly because both his Honour Judge Wheeler and Mr. Pilditch dealt exhaustively and explicitly with their respective spheres, and secondly, because in the discussions that followed many eminent lawyers and surveyors took part and placed upon record experience and opinions of considerable interest and instruction. A valuable addition to our *Transactions* was made by Mr. Graham Mould (Associate), Barrister-at-Law, when he read his paper on the Law of Dilapidations in January, 1914. Mr. Mould set out with great ability and conciseness the law of the subject, and declined the temptation of imposing upon a classic legal production any opinions of his own. A lawyer once misquoted to me that "surveyors step in where angels fear to tread," and perhaps in a sense he was right. Be that as it may, I have felt that the subject I have been requested to bring forward cannot be adequately discussed without excursions into some adjacent fields of work. In the following notes I propose to comment upon:—

- (1) Instructions and survey;
- (2) Special covenants;
- (3) Dilapidation during war;
- (4) Schedules of condition;
- (5) The effect of dilapidations on the value and marketability of property;
- (6) The report of the Land Enquiry Committee on Dilapidations.

The strife between comprehensiveness and brevity has been acute, but I shall ask no excuse for the shortcomings arising from such a struggle if on the points raised we are able in the course of discussion to place on record the views of some eminent practi-

tioners. I am doubtful of the utility of giving instances by way of illustration, except that in so far as being drawn from my own experience they point to actual facts rather than mental theories. Many present here could call to mind instances in their own practices to support my remarks; others might not remember them at the moment.

#### DILAPIDATIONS DEFINED.

In the year 1844 the R.E.B.A. formulated a definition of dilapidations which reads as follows: "For practical purposes dilapidations are in usual practice understood to be those defects only which have arisen from neglect or misuse, and not to extend to such as only indicate age, so long as the efficiency of the part remains. But if the effects of use or age have proceeded so far as to destroy the part or its efficiency in the structure, this argues neglect or misuse, it being the presumption that at the commencement of his term the tenant was satisfied that every part was sufficiently strong to last to its close." It is useful to record this definition here, as it has formed a common basis of practice for seventy years.

#### APPLICATION OF PRINCIPLES.

I do not propose to particularise on the several definitions of "Waste." They are for the legal textbook, and their importance to us lies in the avoidance of such legal distinctions wherever possible. Our business arises when the waste assumes the form of dilapidation pure and simple. When we surveyors take instructions to prepare a schedule of dilapidations we are generally supplied with certain writings called covenants entered into by the parties. These we are required to consider in conjunction with a code of legal principles laid down at various times. This may be a very simple proposition or one of great complexity. Next we have to define in specific items what we take to be the dilapidations accrued, and generally we have also to price each one of those items. These operations make some call on the imagination, but the surveyor wishing to succeed must learn to control that imagination and keep it within the limits usually described as common-sense. Occasionally during the process of this work we encounter what I will call the human element. We have all many times met with that delicate blend of the human element and uncontrolled imagination such as is the cause of much of the prejudice which obtains against the subject of this paper. But I admit that in no single instance can I remember its encouragement by a Member of this Institution. Unfortunately, the dignity of the title "surveyor" (without the prefix "chartered") is permitted to all and sundry who choose to adopt it. In this connection I hope to be pardoned for referring to a case of forfeiture which I was called upon to meet. The specification was a fairly long one, but as I found the premises in the pink of condition I was puzzled to think how it had come to be served. At the trial a witness from one of the large furniture shops owned up to being the "surveyor" who had prepared it. By the time he left the witness-box the most serious item of dilapidation remaining in the schedule was the substitution by the lessee of a new and slightly larger greenhouse boiler for one that was defective at the commencement of the lease. The lessor followed his surveyor into the box, and before very long laid bare to the Court his personal grievance against the lessee. Verdict for the defendant, which followed, did not prevent the plaintiff from expressing the hope of having another cut at his lessee before long. On this occasion the combination of the human element with uninformed or misguided imagination had failed. Both Bench and Bar know quite well how to estimate the evidence of an unqualified witness, but at present they have no power to say that they will not hear him. Were the public equally well informed, we should hear much less of that "chorus of complaints" I have to refer to elsewhere.

#### SURVEY.

Every surveyor will have his own notions of the order in which he takes his particulars for a specification of dilapidations. My own preference is for exterior of main building first, then the interior from top to

bottom, room by room, and lastly, the out-tenant buildings and grounds. I have to say that work is especially necessary to be done very carefully at the finish the description of the premises in the lease and particularly the buildings inspected, making quite sure nothing has been missed. It is always to be found that a groom's cottage about a mile from the mansion has been overlooked. The dimensions of each room, including the height, are well worth taking as a means of checking the measurement of work done and in substitution thereof. The same applies to exterior measurements. I am not, I think, quite an easy matter for a practised hand to run through a moderate sized house and put his figures on a half-sheet of paper; but this method is not to be commended, however experienced the surveyor may be. I remember watching a bout between a cross-examining K.C. and a witness armed with one of those half-sheets. I am sure the witness in question actually knew this work much better than I do, but the half-sheet of paper produced on the face of the referee a look of holy horror which boded ill for the witness. Needless to say, floor plans are frequently useful, as well as scale sketches of important parts. The camera is not to be despised. In the preparation of a specification for the landlord, the qualified surveyor is naturally careful to include only such work as properly can be claimed. In settling with a qualified man there is generally little difficulty. Sometimes claims are made on incomplete instructions or on imperfect knowledge of law and facts. In meeting such claims a general look round at the first evidence of excess may disclose the necessity for particular care in noting objections. Experience is the only guide of what to observe. If a fight should ensue, the value of sketches in illustration of an objection and made at the first survey are most valuable. They convey more to the mind of a judge or a referee than the best phrases ever turned. To provide a comprehensive catalogue of items likely to arise is beyond the scope of my paper; indeed, I have only briefly referred to these elementary matters to ensure some completeness and to stimulate discussion. Differences in the covenants and in the age, character, and diversity of the subject-matter of such covenants can only be appreciated after the training which we call experience. Careful personal observation in one's days of pupillage is the safe foundation on which, combined with common-sense, the surveyor may build his experience.

#### MEASURE OF DAMAGE.

In estimating dilapidations, regard must be had to the legal principle that the measure of damage is limited to the depreciation in value to the reversion. At the end of the term, repair according to covenants or the cost thereof is generally all we have to trouble about, as that is fairly clearly the measure of damage to the reversion. The distinction between damage to reversion and cost of repairs would appear to be easy of application in a case where a lessee, say for twenty-one years, covenanted to paint in each seventh year, and had not kept strictly to the time-table. He could not be penalised in damages during the term unless damage could be shown to the reversion; but if, for instance, he painted in the twentieth year instead of the twenty-first, the reversion would be depreciated, and he would be liable to paint again. To draw a like distinction at the end of the term when premises are coming down is not by any means so simple a matter. Where a lessee holds under full repairing covenants, all the fabric to fall into such disrepair that at the end of the term the lessor has practically no alternative but to rebuild the fabric, compensation should be made to the lessor for the damage he has sustained. But where a lessee holding under the like covenants has kept the fabric of his building in good repair and the lessor finds that owing to changes in the neighbourhood, it will pay him to pull down and rebuild, he should not be entitled to damage, which in fact his reversion has not sustained. This is not uni-

\* Read at the ordinary general meeting of the Surveyors' Institution, held on Monday, February 7, 1916.

versal practice, but it has always seemed to me to be the proper interpretation of the legal principle of damage to the reversion.

#### SPECIAL COVENANTS.

In the comments I have to make on special covenants it will be convenient to follow the order and references in Mr. Graham Mould's paper on the law of the subject:—

(1) *Where there is No Express Contract to Repair, Landlord's Implied Obligation.*—There is in the Housing and Town Planning Act, 1909, Sections 14 and 15, an implied obligation upon the landlord to keep reasonably fit for human habitation houses of the value of £40 a year in London, £26 a year in a borough or urban district of over 50,000 population, and £16 a year elsewhere. This would appear to allow of recovery of damages by a tenant against his landlord for injury where caused by disrepair. This was a dangerous legal precedent, and though it may be provided against by insurance, or possibly be circumvented in other ways, I consider it is wrong to place the burden of damage from disrepair upon the landlord without a provision that before any liability arises he should be made aware of the defect. The principle which was laid down in "*Hugall v. McLean*" as far back as 1885 made it clear that a landlord covenanting to repair should have notice of disrepair before action arose against him. In the Housing Acts so important a factor should not have been overlooked. I have in mind a case where the houses although old were always kept in good repair. A tenant was in the habit of balancing himself on a window-sill to clean the windows. The sill gave out, but he continued the practice without notice to his landlord or agent. One day he fell and broke his arm. The owner's solicitors advised and paid generous compensation to the tenant, whose injury and the landlord's loss could have been prevented by a timely notice that the sill was unsafe. It is surely a sound principle that any person hiring a house should have the first responsibility of keeping it as though it were his own. If the landlord after notice fails to act up to any obligation to repair resting upon him, then by all means let him suffer for his neglect. Further, if the statutory obligation of the landlord were limited in the way I have suggested, the benefit of the tenant's protection should be extended to any member of the tenant's household. As the law now stands, the tenant alone can recover under the covenant implied by the Housing and Town Planning Act, 1909. Tenant's implied obligation in the absence of express covenants to repair should amount to making good breakages besides giving notice of defects. Anything more than this can be provided for by the more satisfactory method of an agreement in writing.

(2) *Where there is an Express Contract to Repair, Tenant's Obligation.*—It is necessary to observe the distinction between a general covenant to repair which impliedly covers all buildings on the land demised, and a repairing covenant which is limited in terms to the buildings demised, for the latter will not be extended to newly erected and distinct buildings. It has been contended in some quarters that there is a hardship on a lessee who having erected buildings for his own convenience should be compelled under a general covenant to leave them in repair. It is surely hard on a lessor to have to put in repair or clear away buildings he does not want, yet a perfectly legitimate charge for clearing away is always met with disavowal. It is not unreasonable to assume that on the grant of a lease a tenant is satisfied with the premises he is taking, and a landlord with the rent he is receiving. The need for future additions cannot always be foreseen, but where it arises and is acted upon it seems as unreasonable for a tenant to object to repair the additions as it is for a landlord to require additional rent for granting a licence to erect them. Under the covenant "*Substantial, repair, uphold, and maintain*," without any specific clauses as to painting and papering the general practice seems to be to require some reasonable preservation of decorative items. However

old, the decorations, if in good condition, should be accepted, and, on the contrary, however new, if damaged or badly done, should be renewed in keeping with the character of the property. Under a full covenant to repair drains it seems to me fair that however stringent the wording of the covenant reconstruction should not be called for unless the necessity therefor should have arisen from neglect or misuse. The case of "*Lyon v. Greenhow*" (1892), where a tenant was held not liable for the cost of making a new drain though under full covenants to repair as well as to discharge all assessments, would seem to be quite in the fitness of things. Under the Public Health Act, 1875, the landlord appears to have been compelled to make a new drain. He endeavoured to recover the cost from his lessee and failed. In the case of "*Hugall v. McLean*" (1885), a tenant under a three years' agreement remedied at her own cost a structural defect in the drains without notice to the landlord. She failed to recover the cost from him, although he had contracted to keep the drains in good tenantable repair. This decision would appear to have been hard upon the tenant, as she would certainly not have been liable under her covenants to remedy the drain. The case always puzzled me until I found a lucid report of it by our Associate, Mr. Arthur Burnaby Howes, in "*Macer's Dilapidations*." From that I gather that the work undertaken by the tenant was not a repair but a structural alteration; that she did the work and only notified her landlord three months afterwards. The judge is reported to have said that "If in a case of instant necessity like the present the landlord did not act very promptly, the tenant would then be justified in treating the covenant as broken, and doing the repairs himself."

"Fair (or reasonable) Wear and Tear excepted."—The measure of dilapidation under a covenant to keep the interior in good repair subject to this exemption should extend, I think, to covering damage that with reasonable care a tenant might have prevented. For instance, where defect in a rain-pipe causes damp inside a house, and destroys decoration or damages woodwork, and the tenant by notifying his landlord might have ensured the prevention of the damage to the interior. He would not be liable for the down pipe, but he certainly ought to pay for what he might have prevented. Yet, as Mr. Howard Martin pointed out here two years ago, it is not always easy to get this from the tenant, or, indeed, anything more than making good breakages. Some alteration is needed in the framing of covenants in tenancy agreements which repeat the old covenants framed when houses were unprovided with many of the modern necessities of sanitation and comfort. Who of us has not found at the end of a three or five years' tenancy a hot-water service irretrievably ruined through failure to clean out the cistern and boiler at proper periods? Where the opportunity occurs of doing so it is a simple matter to set out without ambiguity what are the obligations of the parties to an agreement for tenancy. Then when dilapidations occur they are readily identified. It is, however, difficult to get solicitors to vary the phrases endeared to them by long usage, and perhaps it would be even more difficult to persuade printers to scrap their stocks of forms of agreement.

"Tenantable Repair."—The effect of the decision in "*Proudfoot v. Hart*" (1890) seems to be that this covenant standing alone has fallen into disfavour. For all the lucidity of that judgment there still remains open the question as to whether the "reasonably minded tenant" is a new or continuing one. If "reasonably minded" were to be assessed on an experience of tenant's requirements on taking a house in these days it would amount simply to complete repair. But in 1890, when the case was decided, these requirements were not so exacting and only a few years earlier still tenants did not expect a newly decorated house just for the sake of its newness. There is grained work in a house in my care that has existed at least forty-five years and satisfied several tenants. It is certainly very

fine of its kind, and the present tenant, a man of eminence and of considerable taste, is very jealous of its due preservation. In construing this covenant it would appear to be correct to bear in mind what a reasonably minded tenant would have required at the commencement of the term, subject to changes, if any, in the character of the property or the neighbourhood that had since taken place. Standing alone, the words "tenantable repair" seem to me as indefinite and objectionable as "fair wear and tear" and should be avoided in favour of more explicit terms.

"Fire or other Extraordinary Accident."—Because the covenants in leases under this head are generally clear, questions of dilapidations in case of fire very rarely arise between landlord and tenant, but resolve themselves into an estimate of the cost of reinstatement under insurance. Assessors for insurance companies always call for a builder's estimate in support of a claim. The greatest importance therefore attaches to seeing that in the preparation of the specification and bill of quantities nothing is omitted.

"Non-Liability of Tenant to Rebuild in Case of Total Destruction," and "Liability of Tenant to Rebuild in Case of Partial Destruction."—The practical application of the legal principles laid down in the cases cited in Mr. Mould's paper amounts simply to a common-sense construction of the covenants in each particular case. But I refer to the matter because the cases cited appear to emphasise what I have to say elsewhere on the subject of periodical inspection of buildings.

"Relief against Forfeiture."—I gather there is a feeling abroad that in serving a notice to repair, a landlord need be less specific in his requirements than has heretofore been the recognised practice. The case of "*Jolly v. Brown*," from which this impression is derived, was decided by a majority of the Court of Appeal, consisting of Lord Justice Buckley and Lord Justice Kennedy, the dissenting judge being Lord Justice Vaughan Williams. Up to this stage the particulars are to be found in Mr. Graham Mould's paper (pp. 143 and 144). I desire to emphasise that Lord Justice Buckley is reported to have said: "It is a matter of degree. It is a question if the tenant has had reasonable notice to do what is required of him" ("*Estates Gazette Digest for 1913*," p. 635). On the rehearing, the learned Official Referee (Mr. Ernest Pollock, K.C.), in a very clear judgment, drew attention to the difference between "pointing out the particular breach" and "pointing out particulars of the breach." Whatever the rights or wrongs of the parties in this case may have been, I cannot help thinking that a notice which in the words of the Act specifies "the particular breach complained of" in general terms only would be a dangerous departure from our accepted practice. Under a system of validating notices to repair, made in general terms, there is nothing to prevent an unscrupulous lessor from severely harassing his lessee, while the latter, from lack of particulars, would have no means of determining whether or not he had remedied the breach complained of. After all, a notice to repair is an irritating document, and nothing is to be gained by augmenting the irritation. Rather is it for us to do what we can to keep good relations between lessor and lessee. If the Conveyancing Acts require amendment on the subject of forfeiture, it is abundantly clear, from the case of "*Jolly v. Brown*," that the amenders will need to appreciate the practical side of the subject before putting their amendments into legal terms.

#### DILAPIDATIONS ARISING DURING WAR.

It is difficult to write the word "war" without thinking of the brave men who have fallen and without thinking of sons, brothers, and friends, many of them our co-partners in this Institution, who are still fighting to uphold the standard of liberty. There are many of us whose most depressing reflections turn upon ourselves. The stoic indifference to persecution displayed by our ancestors would appear to have developed into an affectation

of unconcern about things that matter in our nearer forbears, and this through succeeding generations seems to me to have created a spirit of apathy in ourselves, which, if continued, must have resulted in overwhelming disaster. It will have been some compensation for our trials and sorrows if a revival of public-spirited responsibility ensues, and nowhere will such a revival be more welcome than in the rank and file of our own members. A very clear and interesting statement of the law and practice on the subject of damage caused by occupation of premises by the King's forces was put forward by our worthy President, Mr. John Henry Hanson, in his recent address (*Transactions*, vol. xlviii., part 1). I may perhaps be permitted to recall to you from Mr. Hanson's address the following words:—"And lastly the matter is now dealt with under statutory regulations in which, save so far as may be contained in a general declaration of principle that interference should be limited to necessity, there is no provision or restriction in favour of owners, nor for payment of compensation as of right. Provision, however, has been made for such payment as of grace, the amount to be determined by a Royal Commission specially appointed to deal fairly and reasonably with the matter." The obvious course with properties required for military purposes is the preparation of a schedule of condition of the premises at the commencement of the occupation, and this applies generally whether the property taken is urban, residential, or agricultural. There is said to be a desire in some cases to shelve responsibility, but I have not experienced it. Petty haggling has twice come my way over decorations and furniture under agreements for tenancy by local commands, but the blame for that was less on the military authorities than on the newly-made officers whose education in respect for the property of other people had been neglected.

(To be continued.)

#### PROVIDENT INSTITUTION OF BUILDERS' FOREMEN AND CLERKS OF WORKS.

The thirty-fourth annual dinner of this institute, which was founded in 1842 for the purpose of granting pensions to aged and infirm members, their widows and children, and for making grants of temporary relief, was held at the King's Hall, Holborn Restaurant, on Saturday evening, and was numerously attended. The chair was occupied by Mr. William Woodward, F.R.I.B.A., F.S.I. In proposing the toast of the evening, "Success and Prosperity to the Provident Institution," the chairman urged that all builders' foremen and clerks of works ought to give it the fullest support and sympathy in their power. During its seventy-three years' existence it had paid over £20,156 in pensions to members of these two classes. Last year, he was told by Mr. Ernest Searchfield, the secretary, they paid out £755 6s. in pensions and £50 as temporary assistance and funeral grants, amounts only exceeded four times in the history of the institution. He regretted to hear that last year the expenditure overlapped the income by £58 5s. 8d., and the result would be, unless very liberal support was given, that pensions would have to be reduced, and that at a time when the expenses of many were greatly increased. He paid a tribute to the hard work given to the institution by the Governor, Mr. F. J. Dove, L.C.C., the directors and secretary. Every architect was under a debt of gratitude to the foremen and clerks of works on his undertakings. When he started a job he made it a feature to send for the builder's foreman and say, "If you can see any way, any detail, in which you can improve this building for the owner, never mind the specifications, working drawings or quantities, but let me know," and the method had worked admirably. A competent, conscientious clerk of works was a friend equally to architect and builder. It was a bad time to ask for money, for the architectural profession could not be, he hoped, in a worse position, and builders had troubles on every hand, but he ventured to make an urgent appeal to

all to come to the help of so deserving an institution.

Mr. John Beer, Corresponding Secretary, in responding to the toast, made an urgent appeal for additional subscriptions to meet the needs of members of the trades provided for.

In proposing the healths of "The Architects and Surveyors," Sir Herbert H. Bartlett, Bart. (Messrs. Perry and Co., Bow), said he could hardly believe it was, as the chairman reminded him, one-and-twenty years since he presided at the annual dinner. He congratulated the institution on the advance it had made in that period. Members of the architects' profession lived in very hard times; he could only suggest that although there were few commissions going, the increased prices must tend to augment percentages on any jobs that might be forthcoming.

Mr. A. W. S. Cross, F.R.I.B.A., and Mr. H. Northcroft, F.S.I., responded, the latter expressing his regret that the London Master Builders' Association were not giving their cordial support to the movement for the standardising of quantities.

The Chairman gave the toast of "The Builders and Contractors" coupling with it the name of Mr. A. H. Adamson (Messrs. T. H. Adamson and Sons, of Putney, the chairman of last year's dinner, who responded.

The remaining toasts were the comprehensive one of "The Governors, Trustees, Donors, Subscribers, and Visitors," proposed by Mr. F. G. Minter and acknowledged by Mr. Alexander Ritchie, J.P., and Mr. Ben Carter (Messrs. Stephens and Carter), and "The Chairman," introduced by the Mayor of Hampstead, and duly acknowledged. At the close Mr. Searchfield read a list of donations, headed by gifts of ten guineas each from the Chairman, Sir Herbert Bartlett, and Mr. Thomas Costigan, Secretary of the London Master Builders' Association, the total amounting to £172. During the evening the speeches were agreeably diversified by a musical programme, to which the genial Chairman contributed in good form and voice "The Boys of the Old Brigade." The chorus was taken up vociferously by the company, and an encore was demanded, but declined by Mr. Woodward.

The Liverpool Red Cross sale organised by the Auctioneers and Estate Agents' Institute will yield, with subscriptions, £2,000.

The death is announced of Mr. Alfred Jones Collin, formerly chief engineer of the Cambrian Railways Company. He also acted as engineer of the Tanat Valley and the Welshpool and Llanfair Light Railways, both of which he planned.

A service was held yesterday (Tuesday) afternoon at Westminster Abbey for the dedication of the tablet to the memory of Canon Barnett by Sir George Frampton, R.A., which has been placed on the north wall in the south aisle of the Abbey.

The military authorities propose to make use of the isolation hospital at Bingley, West Riding, belonging to the urban district council, for Army purposes, and to extend it by the addition of 170 beds, at an estimated cost of £6,000, which it is proposed to raise by voluntary effort.

Three stained glass windows have been placed in the south aisle of the parish church of Kirton, South Lincolnshire, by Mr. John Speak, of the Grange. The first illustrates "The Story of Dorcas," the second "The Parable of the Talents," and the third represents "The Parable of the Good Samaritan."

The nave of the fine parish church at Poulshot, near Devizes, was destroyed by fire on Wednesday. The cause is supposed to have been an overheated stovepipe. A son of Isaac Walton was once rector of the parish. The fabric dated from the twelfth century, but considerable alterations were carried out in the sixteenth century. The tower, which is modern, and in which there were three old bells, is preserved, as well as the chancel.

Mr. Rudolf Blind, the artist, died on Wednesday at his residence in Queen Anne's Grove, Chiswick, aged 66. Mr. Blind was a son of Karl Blind, and was educated at University College School and at the Royal Academy. Among his best known pictures were "The Golden Gates," "Christ the Consoler," "The World's Desire," "Love's Ecstasy," and "The Throne of Grace." He also helped to execute the decorations of the Opera House at Vienna.

#### LONDON COUNTY COUNCIL.

It was reported to the London County Council at its meeting yesterday (Feb. 7) afternoon that the total capital expenditure on the Mall to Charing Cross, including land registry fees, will amount approximately to £71,525, an addition of about £400 to the original estimate. Of this only the County Council is bearing one-third.

The Council was recommended to sanction loans of £15,000 to the borough council of St. Pancras for works in connection with the installation of two new boilers at the electric generating station, and of £3,290 to the Woolwich Borough Council for electric main transformers and switchgear.

It was reported that Captain Charles Stanley Blake, of the 10th Service Battalion, Prince of Wales's Volunteers, South Lancashire Regiment, a first class assistant in the architect's department, has been killed in action.

Mr. Andrew T. Taylor, F.R.I.B.A., was appointed vice chairman of the Local Government Records and Museum Committee.

The Building Act Committee recommended that leave of absence without pay be granted to Mr. P. J. Symmons, an assistant in the first class in the architect's department, in order that he may temporarily undertake Government work under the Ministry of Munitions in connection with the construction of munitions buildings.

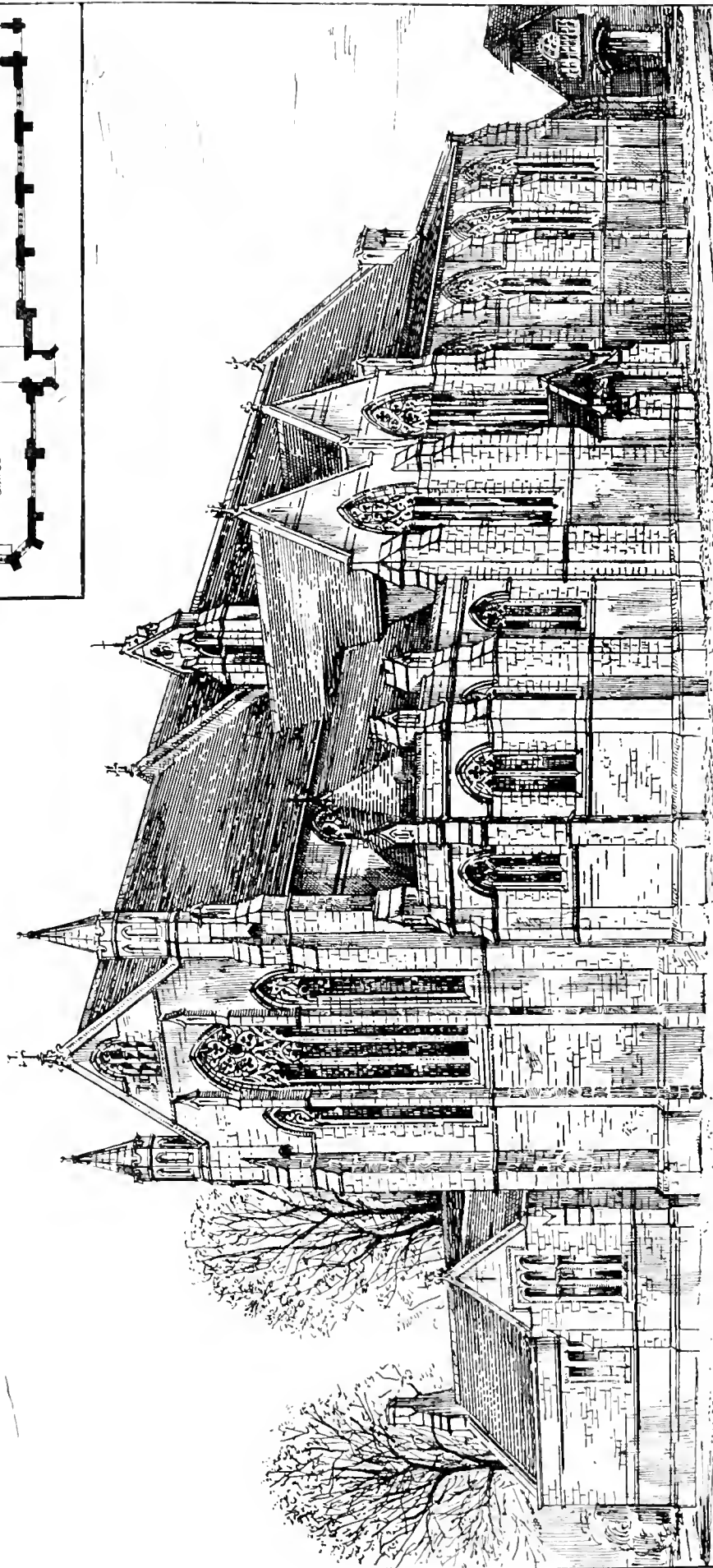
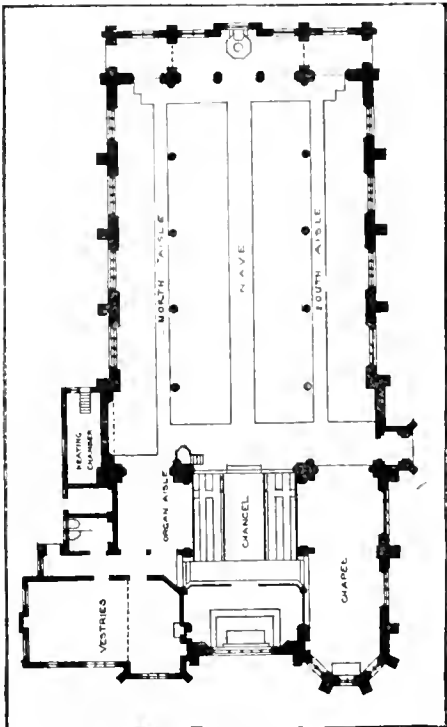
The Highways Committee reported that in January, 1915, tenders were received for the reconstruction of the trackwork of the tramways in Burdett Road and Grove Road, from West India Docks to Fenshurst Road, and four weeks later, on February 11, 1915, the committee accepted the tender of Dick Kerr and Co., Limited, amounting to £60,565 9s. 5d. In view of the subsequent representations by H.M. Treasury as to the curtailment of capital expenditure, the sanction of the Treasury was sought to the expenditure involved by the reconstruction of these tramways, but on April 23, 1915, an intimation was received that this sanction would be withheld. In the meantime, the contractors had incurred, or were committed to, certain expenditure, and they asked the Council to meet them in regard thereto. A settlement has been arrived at with the contractors under which the Council has taken over the materials already delivered in London, and will reimburse the company in regard to out of pocket expenses, including sums paid by them in respect of cancellation of contracts. On this basis, the sum to be paid to the company will amount to about £6,375, subject to final verification of figures. Only part of this expenditure will, the Committee reported, prove abortive, as the materials to the value of about £6,350 can be used for maintenance purposes, or when any construction work is next undertaken.

The Housing of the Working Classes Committee reported that having regard to circumstances arising out of the war which prevent the Council from proceeding normally with the execution of the Tabard Street scheme, they had asked the Local Government Board for permission to deviate from the order of procedure which it prescribed when confirming the scheme. Under the provisions of the confirming order the Council is prohibited from demolishing any more of the old houses pending the provision of rehousing accommodation as required by the order. The Committee's proposal is to maintain only those premises which might, without undue cost, be kept in tenable condition, and to close and demolish that property which could not reasonably be kept occupied. They had, accordingly, applied to the Local Government Board for its consent to the immediate demolition, apart from the accommodation already destroyed, of 274 old houses, of which, at the time the scheme was formulated, were occupied by 1,235 persons of the working classes. In October, 1915, only 10 of these houses were left intact, the actual population being 221 persons. The total number of houses to be retained for the present is 197, of which 120 were completed in October.

St. Mark's Church, in the City, was destroyed by fire.



THE BUILDING NEWS, FEBRUARY 9, 1916.



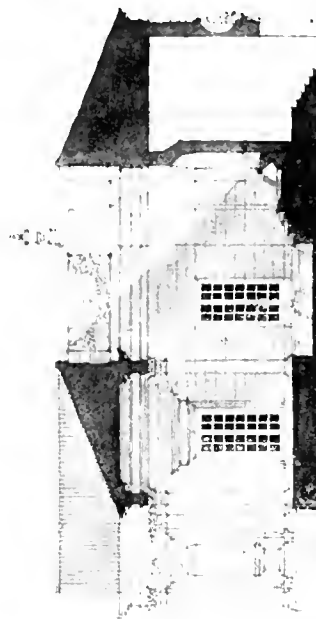
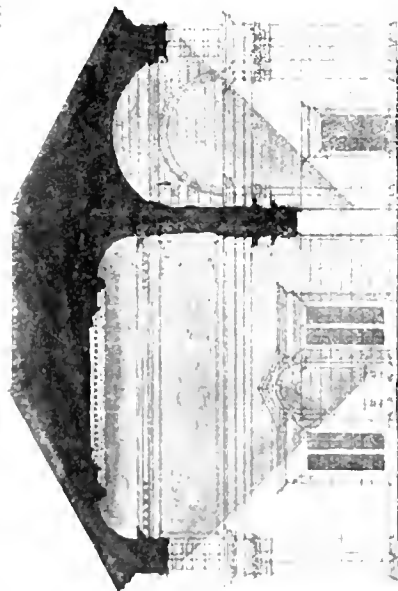
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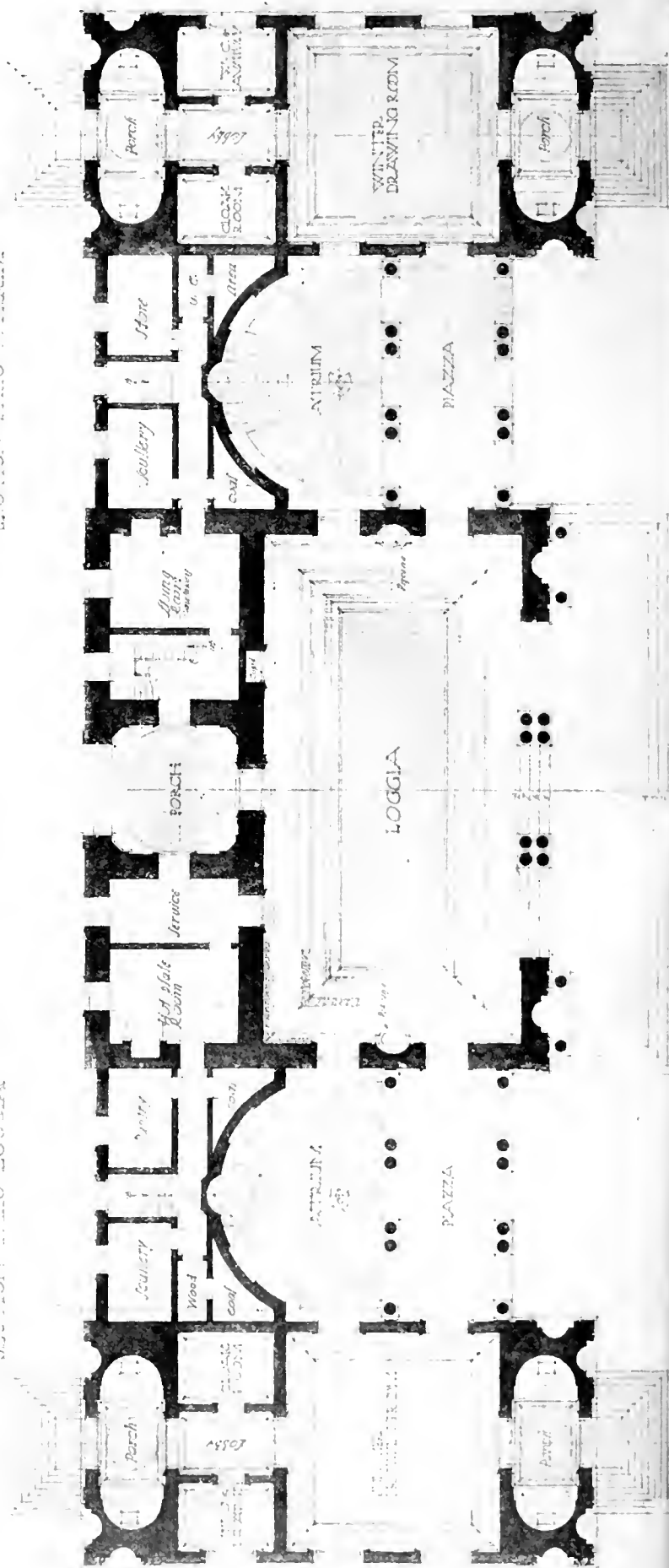


# DESIGN FOR LOGGIA BY MRS. J. H. B. B. B.



SECTION THROUGH LOGGIA

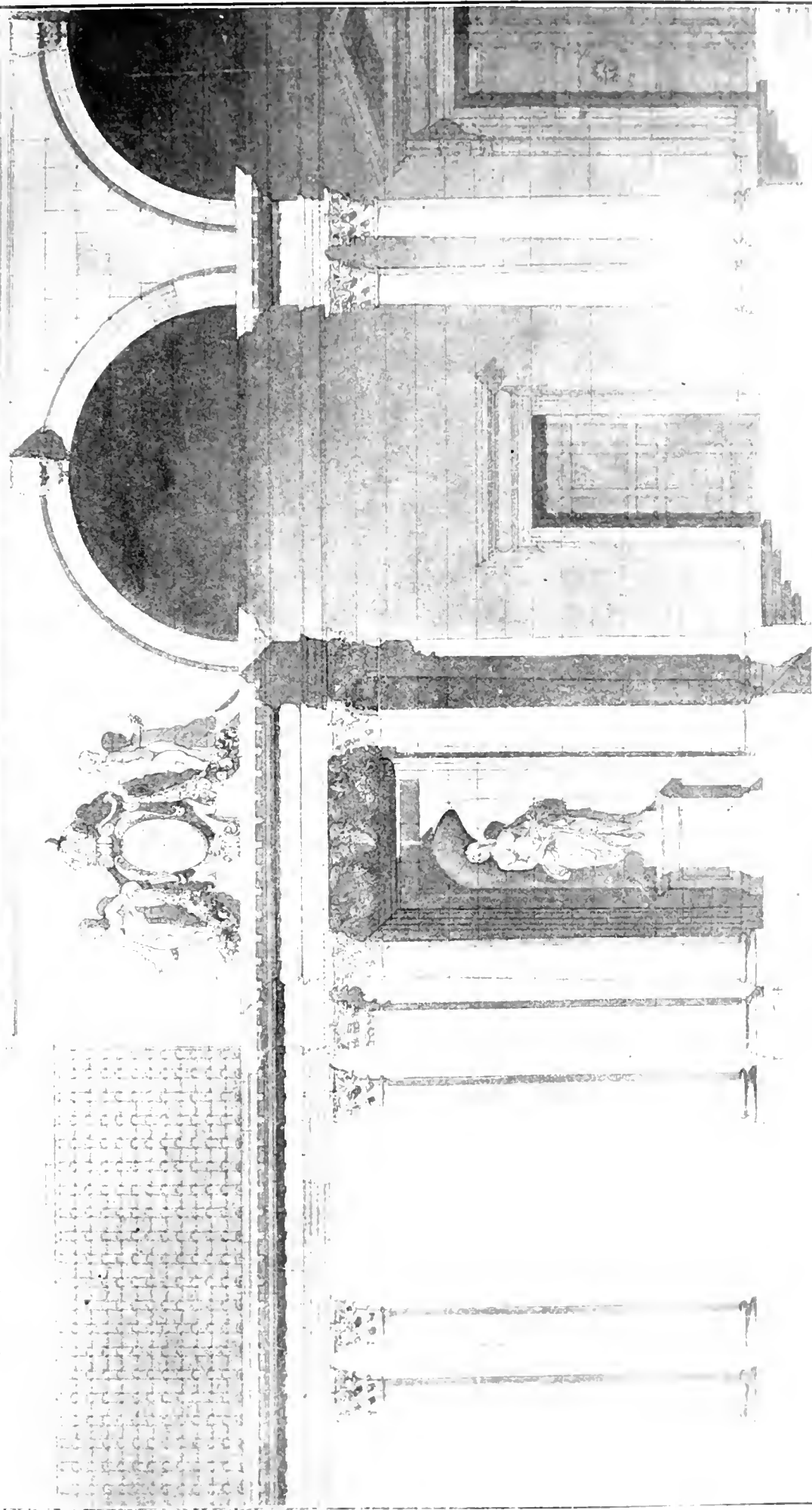
SECTION THROUGH MUSEUM



# DESIGN FOR LOGGIA

DESIGN

1889-1890



ACADEMY - SILVER MEDAL PRIZE DESIGN FOR A LOGGIA DETAIL OF MAIN FRONT AND PLAN  
BY MR. DAVE ROSE L.S.

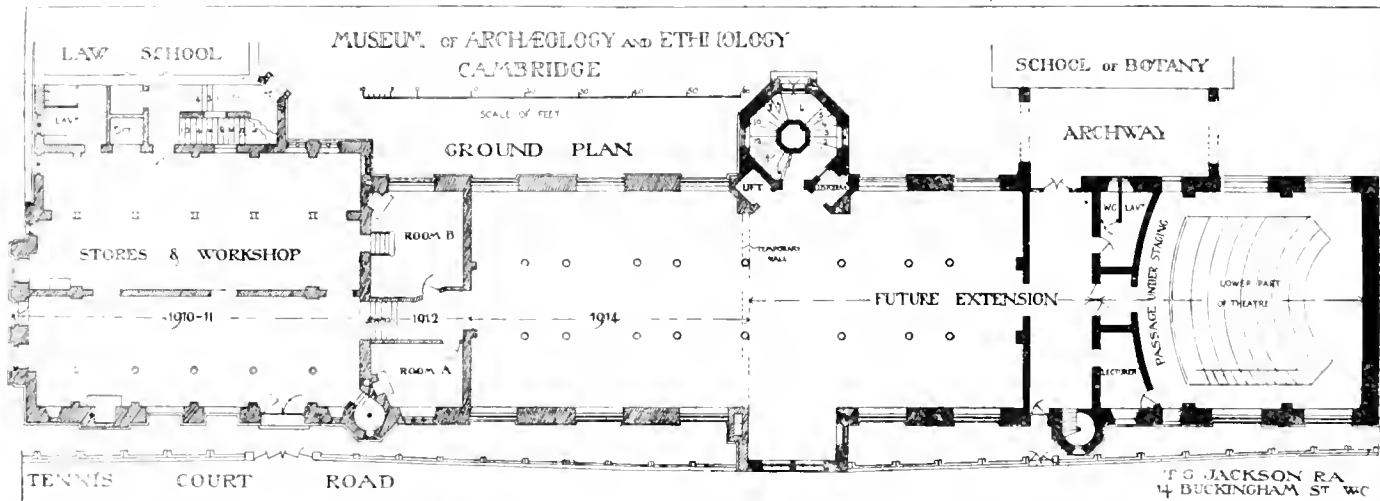
## Our Illustrations.

### MUSEUM OF ARCHAEOLOGY AND ETHNOLOGY, DOWNING STREET, CAMBRIDGE.

The new museum for the archaeological and ethnological collections of the University of Cambridge, of which successive blocks have been built during the last six years from the designs of Sir Thomas G. Jackson, Bart., R.A., forms a continuation of the Sedgwick Geological Museum and the Law Library and school built by him a few years ago. The illustration, from a drawing in the last Royal Academy Exhibition, shows the design for finishing the building. The first block had a frontage to Downing Street completing the facade, together with the Law and Geological buildings. The rest of the new museum runs

to afford good lighting to the nave as well as the aisles. The stone arcade arches between nave and chancel and aisles will be of lofty proportions, and richly moulded. The roofs of nave, chancel, and chapel will be of arched form, and panelled, with moulded principals and ribs, the panels filled in with Oregon pine boarding. No tower is intended, but a bell turret will be built over the chancel arch pier, and picturesque features are obtained by double transept gables to south aisle and chapel, and by the octagonal projection of the chapel beyond chancel. It is intended to face the walls outside and inside with Casterton stone, the outside window and other dressings to be Weldon stone, and all the arcade pillars, arches, etc., inside to be of Bath stone; roofs covered with red hand-made tiles. Accommodation will be provided for 750 persons. The architect is Mr. J. S. Alder, of 1, Arundel Street, Strand, W.C.

became unlawful, or was rendered impossible. It was impossible from day to day or week to week to tell whether it would be necessary to stop or decrease the light, and plaintiffs must be ready to resume the provision of light on the repeal of the restriction. He held that the performance of the contract had not been rendered impossible or unlawful by the order under the Defence of the Realm Act. As to the defendants' contention that the contract should be suspended during the time the orders were in force there was no ground his lordship could see to entitle him to take such a course. Plaintiffs desired to come to an arrangement by which defendants should have credit for gas not consumed. This suggestion defendants declined to accept or even consider. It seemed a wise and fair thing for local authorities, rather than spend the ratepayers' money in litigation, to come to some such arrangement as was suggested by plaintiffs. Perhaps it would be better still if Parliament could find time to insert in one of the emergency statutes a clause



back along Tennis Court Road, enclosing the central quadrangle. For the part already built the University was largely indebted to the liberality of the Foster family, and the whole scheme owes much to the energy and exertions of the Curator, Baron Anatole von Hügel, which have extended over many years. The valuable collections of the University, which have never been displayed to advantage in the former very inadequate museum, are now being arranged in their new quarters. We give a plan, also kindly lent us by Sir Thomas G. Jackson, the architect.

### ROYAL ACADEMY SILVER MEDAL DESIGN FOR A LOGGIA.

This design obtained for its author, Mr. Daniel Royce Lyne (who now holds a commission in R.M. Forces and expects shortly to go to the front), the Royal Academy Silver Medal and £10. The drawings were fully reviewed, with the other prize works at the Exhibition at Burlington House, in our pages on December 15 last. It was required under the conditions set to design a detached loggia of ample and generous proportions in which twelve people could dine in comfort and dignity. The additional accommodation required was to consist of two drawing-rooms with separate cloak and lavatory accommodation, service rooms, including hot plate room, and accommodation for an old married couple who were to act as caretakers. The house was to be on the grounds of which the loggia was to be built was of the Wren period, but was not sufficiently near to affect the style of the

### SOANE MEDALLION AND TRAVELLING STUDENTSHIP DRAWINGS IN ITALY; RAVENNA SAN VITALE, AND A NEW DOORWAY TO AN OLD HOUSE IN VIA INGLAPIETRE, BOLOGNA.

The sketches here reproduced are from a series made by Mr. Alick G. Horsnell during his travelling studentship tour in Italy. We illustrated other sketches from the series in our issues of September 29, October 20, and October 27 last. Mr. Horsnell won the Soane Medallion in 1910, and the Tite Prize in 1906. He at present holds a commission in the Army, and has been wounded, but, we are pleased to say, he is now well on the way to recovery.

### LEGAL INTELLIGENCE.

**LITIGATION AS TO STREET LIGHTING IN WAR TIME.** Mr. Justice Low gave judgment in the King's Bench Division, on February 1, in the action brought by the Leiston Gas Company, Limited, against the Urban District Council of Leiston cum Sizewell, East Suffolk, for £157 15s. 9d., three quarterly payments due for street lighting. Under the Defence of the Realm Act orders had been made stopping in part at first and subsequently the lighting of the whole of the lamps referred to in a five years' agreement between the parties. By the agreement plaintiffs undertook to provide gas lamps and standards which were to remain their property, to supply gas, and to keep the lamps and standards in repair. It was contended that when the order was made by the military authorities forbidding the lighting of the lamps, the agreement came to an end, and the plaintiffs were entitled to remove and dispose of the lamps and other plant, and the defendants were absolved from making any further payments. In support of this proposition the defendants relied on *Esposito v. Bowden*, *Baily v. De Crespigny*, *Krell v. Henry*, *Geipel v. Smith*, and the authorities cited in these cases. The contract, however, was not only to furnish light, but also the necessary plant, and it was impossible to distinguish in the amount agreed to be paid per lamp how much was deferred payment for furnishing the plant, and how much for gas consumed. In his lordship's view it was not correct to say that because in time of emergency the military authorities forbade the actual lighting, the provision for lighting

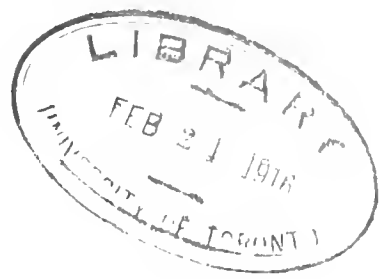
providing for equitable adjustment of such a dispute as this. Judgment would be for plaintiffs for the amount claimed, with costs. A stay of execution was granted pending an appeal.

### RAILWAY CONTRACTOR'S UNSUCCESSFUL CLAIM.

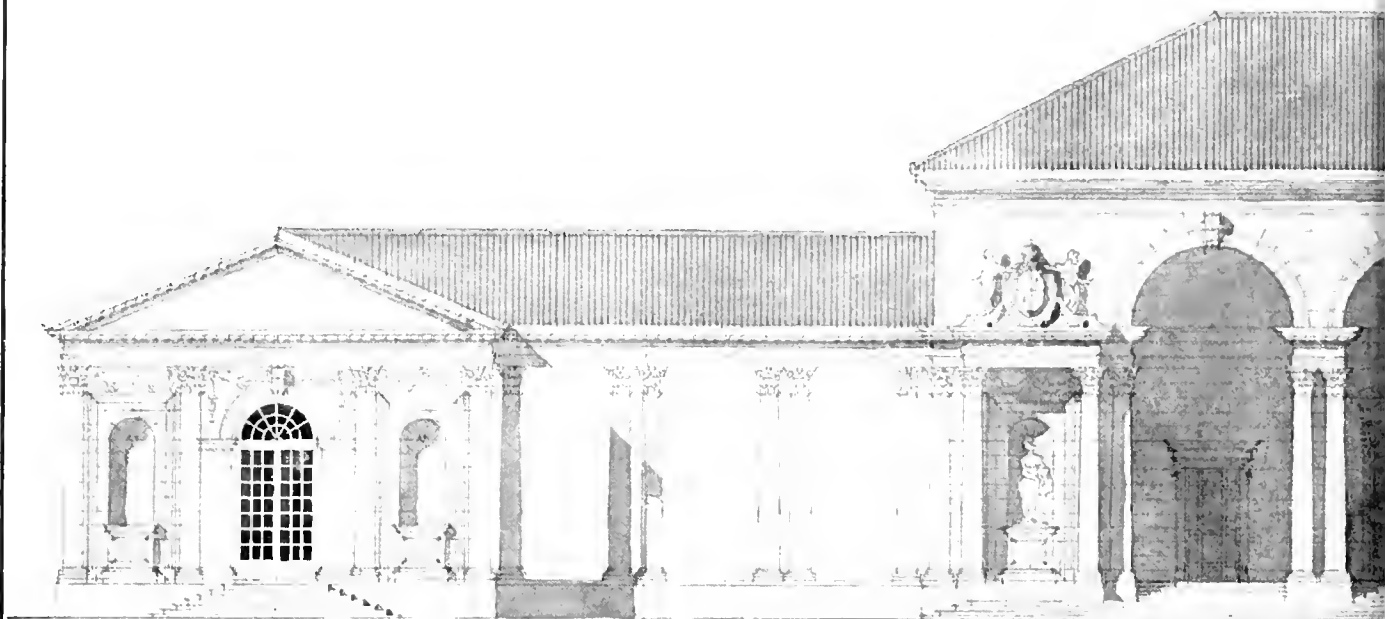
**J. Smellie v. Caledonian Railway Company.**—In the Scottish Court of Session on February 1, the Lord President and Lord Mackenzie, Skerrington, and Cullen gave judgment in a reclaiming note for John Smellie, contractor, South Street, Whiteinch, Glasgow, in his action against the Caledonian Railway Company for payment of £49,523 9s. 2d. The pursuer constructed for the defenders the Paisley and Barrhead District Railway, over four miles in length, the estimated cost being £114,000. He contended that a fair value for the work done was £217,151, and he sued for the difference between that sum and £167,600, which he had already been paid, and which the defenders estimated to be the cost of the works actually carried out. The pursuer pleaded that the work which he actually executed was so entirely different from that which the contract contemplated that the contract could not be taken as a basis of payment. The defence was that the contract was the basis of payment, and that the subject matter of the present claim must be determined by arbitration. In the Outer House, Lord Dewar dismissed the action as irrelevant, and found the pursuer liable in expenses. The Division adhered to the interlocutor of the Lord Ordinary, with additional expenses. The Lord President said the pursuer believed, during the six years the contract was being executed, that he was duly performing it under and in terms of his written engagement. His belief was shared by the railway company. Both parties remained in that belief for nearly eight years after the contract was completed, when, for some unexplained reason, it suddenly dawned on the pursuer that to the extent of the sum for which he now sued the work was not contract work at all, and accordingly he now sued for payment as for a "quantum meruit." It was contended that owing to a series of faults and shortcomings on the part of the defenders and their engineers the work ceased to be contract work, and became non-contract work. No argument was offered in support of that view, which was entirely unintelligible. He was at a loss to understand how the character of work could be altered by adding to its quantity.

### ST. ANDREW'S CHURCH, SUDBURY, MIDDLESEX.

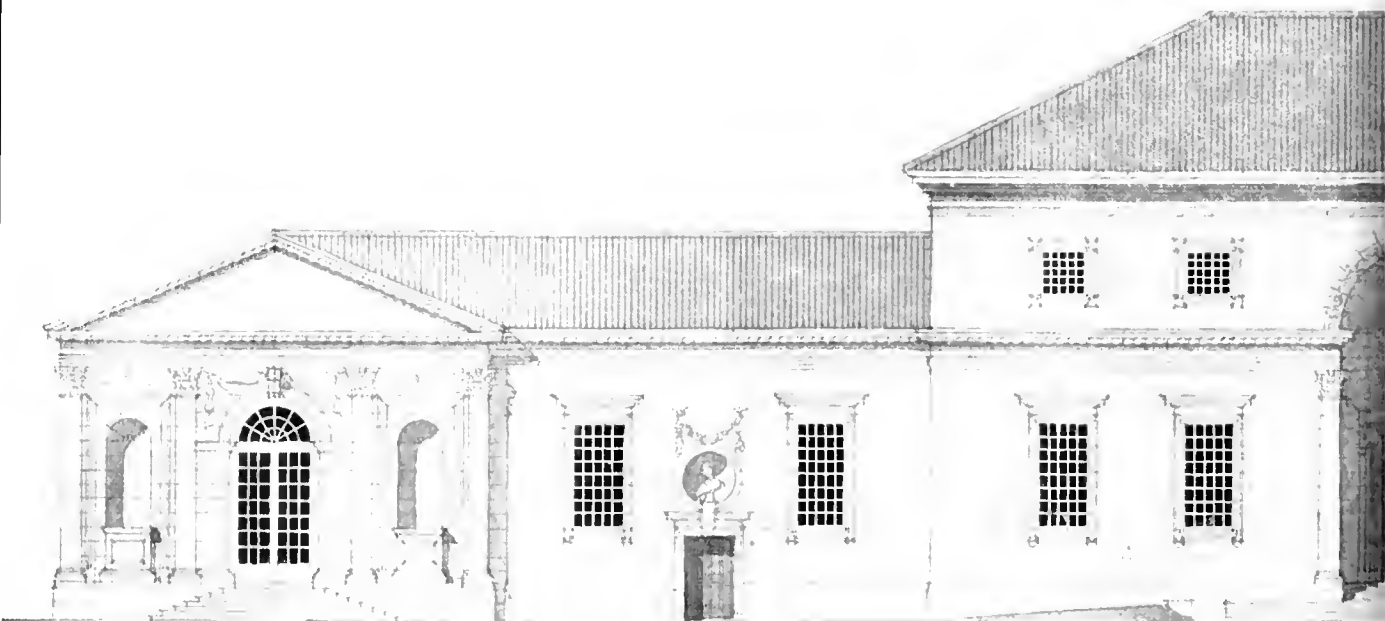
The new church is to be erected on a site adjoining to main road leading to Harrow, and at the end of the existing parish hall. It will consist of nave, 39 ft. long and 32 ft. wide, with baptistery and font at west end of same; aisles 35 ft. long and 12 ft. wide, with transept projections at east end of same; chancel 19 ft. by 25 ft.; Lady chapel 16 ft. by 15 ft.; organ aisle, clergy, and choir vestries, and suitable porches at entrances. There will be no clerestory windows to the nave, but the aisles will be lofty and have flat, copper-covered roofs, and the side windows will be large, and kept high up, so as



WEST ELEVATION



EAST ELEVATION

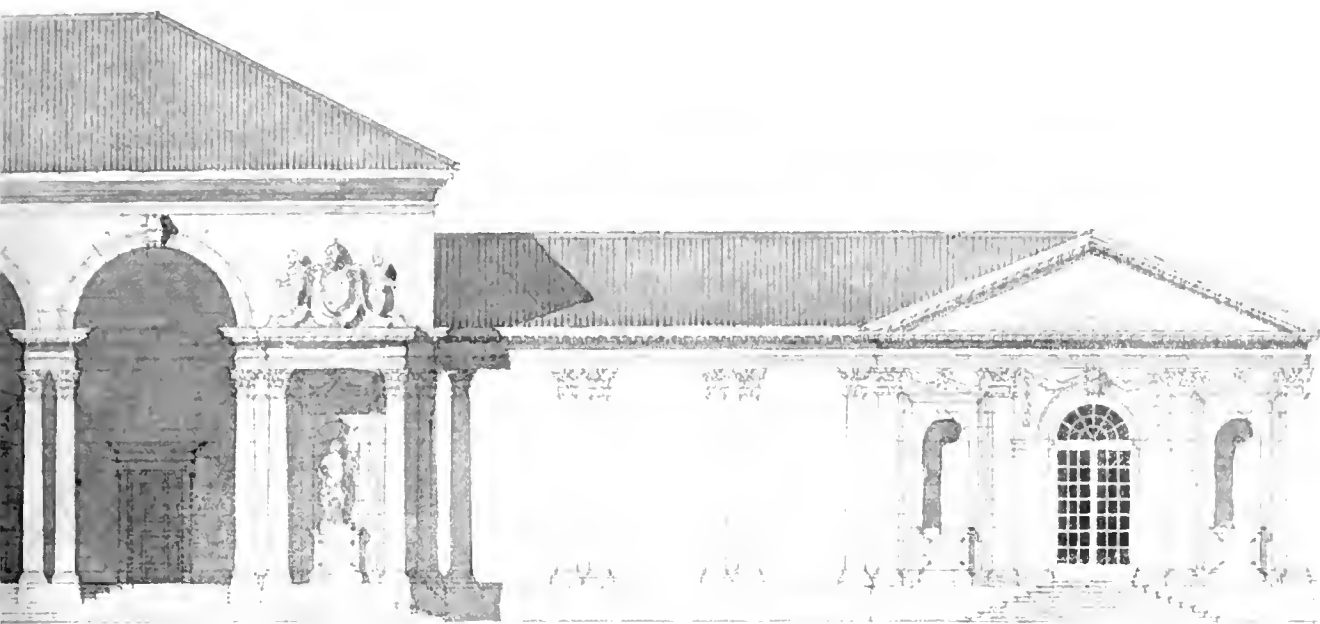


EAST ELEVATION

Foot



BURUARY 9, 1916.

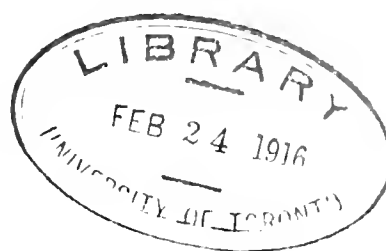


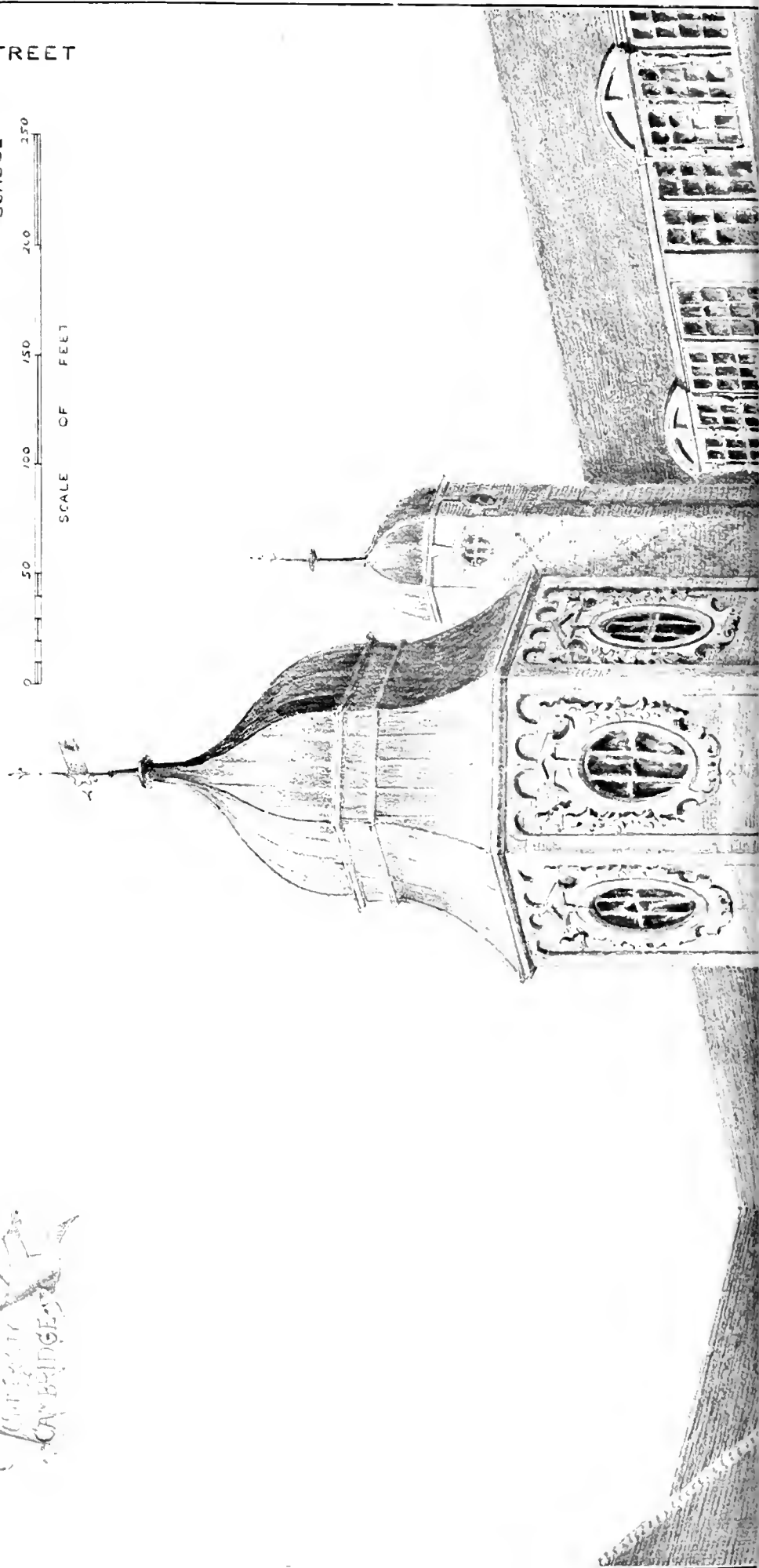
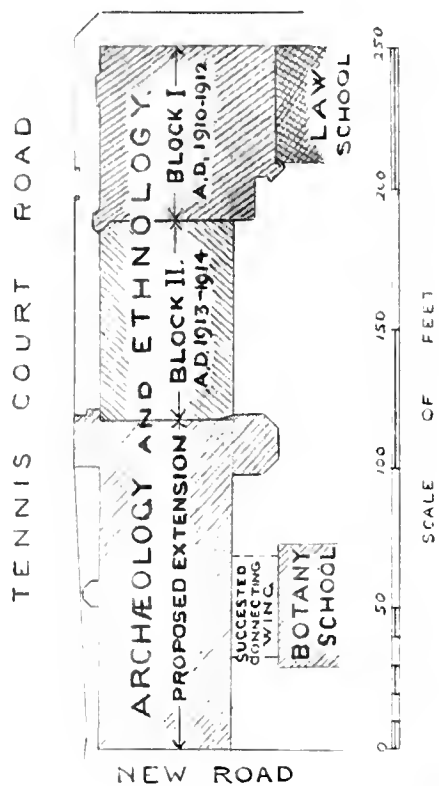
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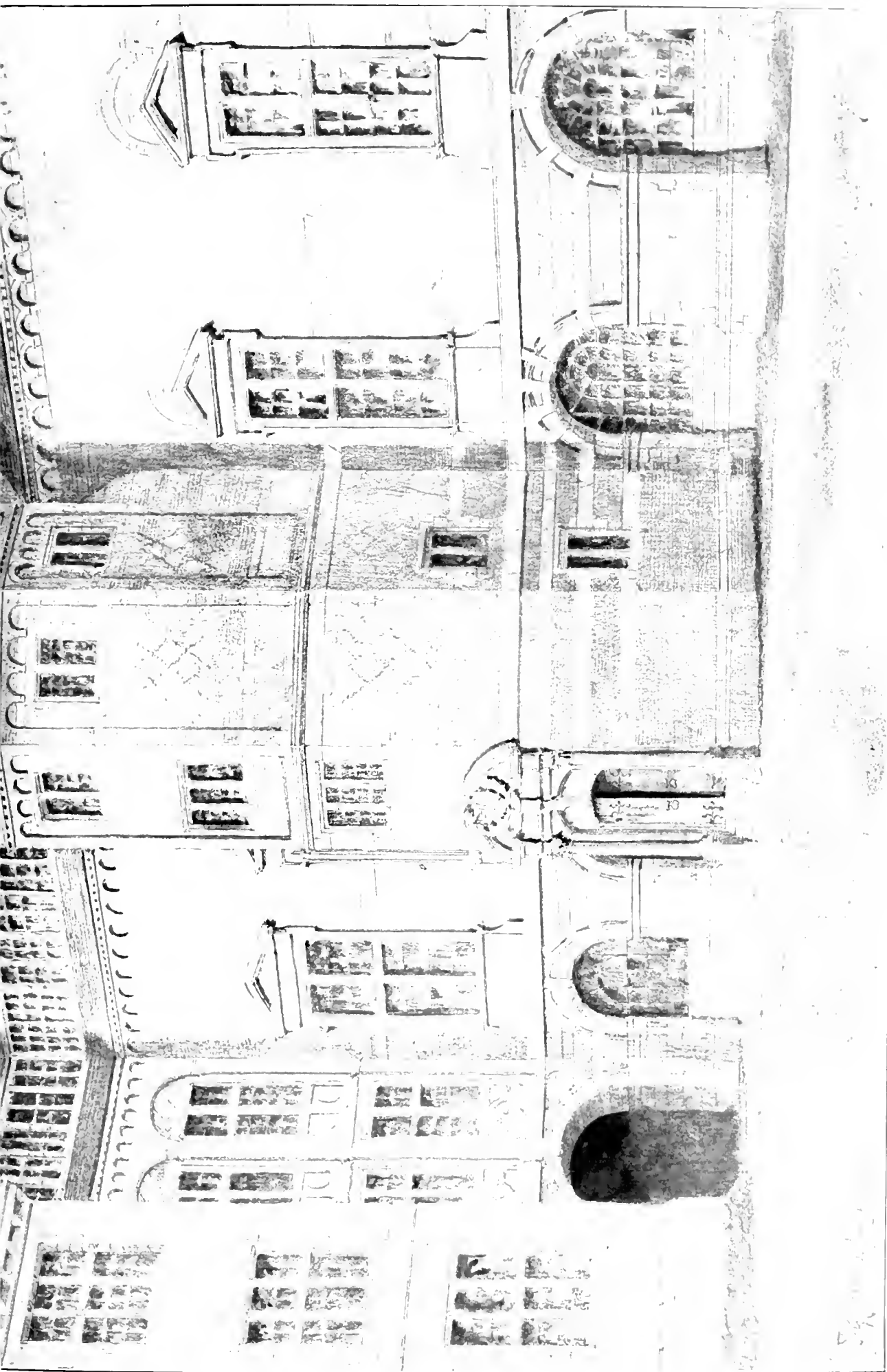


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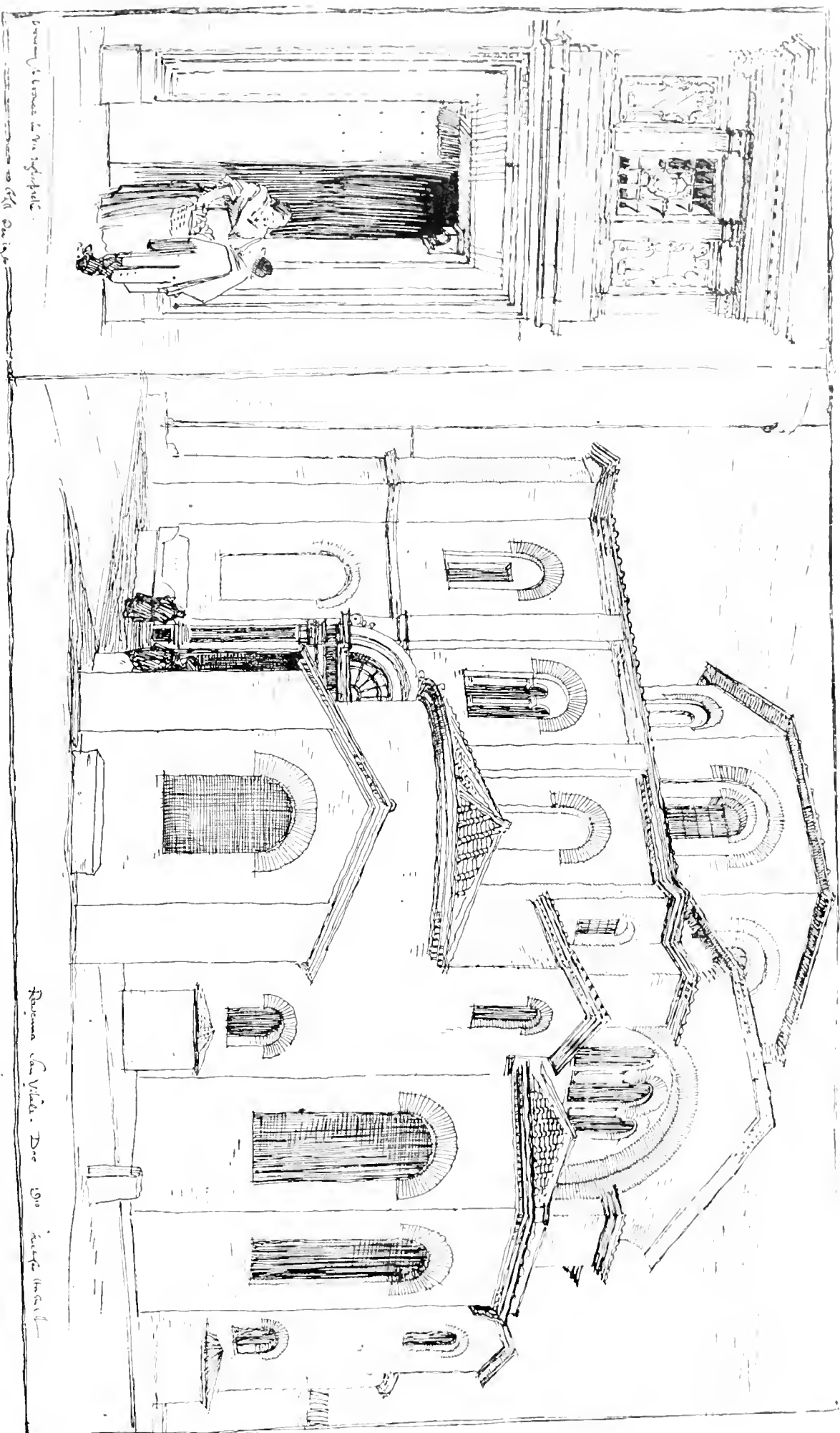




MUSEUM OF ARCHAEOLOGY AND ETHNOLOGY, DOWNING STREET, CAMBRIDGE.  
Sir J. N. G. GRAHAM, J. N. G. BULL, R.A., Architect.







RAVENNA SAN VITALE, AND A NEW DOORWAY TO AN OLD HOUSE IN VIA INGLAPIETRE, BOLOGNA.  
Travelling Studentship Sketches in Italy by Mr. ALICE G. HORSNELL.

## Building Intelligence.

**Edinburgh.** At the Dean of Guild Court on Friday warrant was granted to Mr. George Dalziel to make alterations at 5-11 Abbey Strand the Canongate, Holyrood. This is a building of some historical interest, and though it is not known who occupied it in olden times, it is reckoned that the original part of the erection is some 250 years old. It seems to have been added to about a century ago. Many of its ancient features have been completely obliterated and spoiled, and the intention of the new owner is to have it restored to its original condition externally and to make it thoroughly sanitary within. The work, which is to be carried out under the advice and supervision of Dr. Thomas Ross, of Edinburgh, architect, will consist of taking out the two top stories, thereby, of course, lowering the height of the building, and restoring a series of former windows of masonry construction. The building is at present used as a tenement, and the alterations that will be effected will have the good result of greatly reducing the existing congested state of occupancy from about twenty-five families to about fifteen.

**LIVERPOOL.**—The present position with regard to the building of Mr. G. Gilbert Scott's new cathedral was explained on Monday by the Bishop at a meeting of the Cathedral Committee. Dr. Chavasse pointed out that it had become inadvisable, if not impossible, to carry out the original purpose, to raise a sum of £40,000 so as to complete the cathedral choir and central space by midsummer, 1917; neither was it possible, without serious loss and inconvenience, to stop building altogether until the return of peace. The committee, therefore, adopted a third course. The £15,000 needed to complete and safeguard the shell of the building was asked for, and in a few weeks £8,000 had been subscribed, and now only £5,000 more was needed to carry out this section of the undertaking.

### PROFESSIONAL AND TRADE SOCIETIES.

**ARCHITECTURAL ASSOCIATION OF IRELAND.** An ordinary meeting was held on Thursday, February 3, when Mr. R. M. Butler, F.R.I.B.A., read a paper on "The Gothic Revival and its Effects." Mr. H. G. Leask presided. The paper traced the revival of Gothic architecture, which had fallen into disuse for some hundreds of years, from its first beginnings, at a house commenced by Horace Walpole in 1755, and finished in 1770 at Strawberry Hill, which was rebuilt in "the Gothic taste," as it was then called, and explained some of the causes of the failure of the revival to recreate a living style of architecture such as existed in the Middle Ages, and referred to the influence it exercised upon modern architecture of the present day in these countries. Walpole's initiative set the fashion, and later the novels of Sir Walter Scott had no small share in popularising the taste for Gothic. The earlier churches and houses built in the style were mere travesties of Mediaeval art, as their designers were ignorant of its principles. The first important building in England built in this style was the Houses of Parliament at Westminster, designed by Sir Charles Barry in 1835, who was assisted in the design of the ornamental details by A. W. Pugin. It was one of the first modern public buildings in Europe, and far away the best erected by the British Government. Later, the influence of Pugin's writings, the Great Exhibition of 1851, the publication of the works of John Ruskin, the Oxford Movement and a variety of other causes led to Gothic becoming the dominant style of the mid-nineteenth century, eclipsing traditional English Classical art, which had prevailed until well into the century. By 1850 Gothic was in full swing in England, and had been introduced into Ireland, and to doubt its superiority was considered evidence of bad taste; it was then deemed the only possible style for a Christian church. Gothic also came into vogue for secular pur-

poses, but the modern version was an incongruous and artificial form of design, in that it neglected alike the traditional elements of old Domestic work, and the conditions of modern times. The growing cheapness of foreign travel, the writings of Ruskin, and other factors brought about the introduction of foreign and exotic features, the taste for which rapidly developed, proving a wholly regrettable influence, which tended later to discredit the revival movement. The copyism and adaptation of Mediaeval architecture was carried out too literally, and with too little regard for modern requirements and conditions. In the late 'seventies a change took place in England, the foundations of a fine school of Domestic architecture, superior to that of any other country, were laid, and the ecclesiastical side of the movement took on a newer and more living character. The pioneers of this latter phase were the late J. D. Sedding, the architect of Holy Trinity Church, Chelsea, the late G. F. Bodley, R.A., and J. F. Bentley, the architect of the new Westminster Cathedral, who succeeded in recovering a good deal of the quality of the Mediaeval art, but adapted to modern needs. The work of this period in England might be described as the best modern ecclesiastical work of Gothic type in the world, although it could not be said that the Gothic revival, as a whole, had been a great success from the standpoint of the advancement of architecture. The Gothic revival in Ireland followed on similar lines to that in England; it was not progressive in character, but adhered to the early ideas and to the foreign influence which had done so much harm to English architecture before it was discarded in that country. The Gothic revival in Ireland had failed to create really great architecture, partly because of its entire disregard of native Irish traditions in architecture, and by reason of the extent to which it fell under English and foreign influence in the beginning. It was lamentable that no effort was made to derive inspiration from the native remains. Nevertheless, some very creditable work was done. The lecturer referred to the difficulties under which the Irish people laboured at the time the great church-building era began in this country, and the absence of great Mediaeval traditions like those of England—although Ireland did possess a distinct Mediaeval Gothic architecture of its own. The Gothic revival had done relatively greater harm to the art of architecture in Ireland, because it destroyed the classical traditions that prevailed in the eighteenth and early nineteenth centuries, when the public buildings and mansions of Dublin rivalled those of London, and set up nothing equally good. The lecturer finally described the rise and progress of the modern school of Gothic architecture in America, which has now reached an exceptionally high level. The most important churches and colleges in the United States are designed in this style, including the immense work recently finished at the West Point Naval Academy. The lecture was illustrated by a large number of lantern views of modern English and Irish churches, and slides of American Gothic architecture, lent for the occasion by Mr. Ralph A. Cram, of Boston, a leader of the Gothic School in the United States.

**A VISIT TO NEW ZEALAND AND THE SOUTH SEA ISLANDS.**—The Edinburgh Architectural Association met on February 3, when a lecture was delivered by Mr. W. T. Oldrieve, F.R.I.B.A., on "A Recent Visit to New Zealand and the South Sea Islands." Mr. T. F. MacLellan, A.R.I.B.A., president, occupied the chair. The architecture of the Maoris was illustrated by slides from photographs of their dwellings and guest-houses, and a series of wood carvings showing both ancient and modern workmanship. A fine specimen of the application of an ornamented war canoe to Maori house architecture was shown in a view of a "pataka," or food-house, which was built out of a large war canoe on the shore of Papaitonga Lake. A plan of a typical Maori "whare," or dwelling-house, with details of its construction, was explained, as also a plan of a fortified Maori stronghold, or "pa." The construc-

tion of the typical colonial wood-framed bungalow was illustrated at various stages of construction as seen by the lecturer, and some attractive finished specimens were shown. The granites and building stones of New Zealand and the extraordinary variety of New Zealand timber trees were also referred to. The views of houses in Fiji, Tonga, and Samoa embraced both native and modern types, a remarkable difference being apparent between the native type of "palace" in which Tamassesse, High Chief of Samoa, was interviewed, and the modern-looking wood-built palace of King George II. of Tonga.

**EDINBURGH AND LEITH BUILDING TRADES.**—The forty-fourth annual meeting of the Edinburgh, Leith, and District Building Trades Association was held on January 31 at 123, George Street, Edinburgh—Mr. Edward Bruce, president, in the chair. The annual report stated that of all industries the building trade had been more adversely affected by the war than any other. In Edinburgh and district the normal approximate value of building warrants passing through the Dean of Guild Court was between £600,000 and £700,000. For the year 1915 the figure was £140,000. The demand for war expenditure, the high rate of wages, the restrictions of the Rents Act, and the high costs of production and freight all made for general depression. There was, however, a very widespread necessity for further building accommodation, which was only restrained by the necessities of the war, and with the cessation of hostilities a rapid revival might be confidently expected in the building trade. The report was unanimously adopted. A satisfactory balance sheet was submitted, and a further sum of £100 was directed to be placed in War Loan stock. The office-bearers for the ensuing year were elected as follows: President, Mr. Edward Bruce; vice-presidents, Mr. James Crowe, Mr. D. A. Angus, and Mr. Adam Currie, together with a committee of fifteen members.

### TRADE NOTES.

Boyle's latest patent "Air-Pump" ventilators have been adopted for the Central Schools, Port Talbot.

The War Office has used Ironite in Yorkshire for coating the concrete huts at several of the large camps to the extent of about 450,000 square yards. The latest contract placed is for Knowsley Park camp, where Ironite is to be used on wood.

The engineer for the new Amer's Palace now being built in Afghanistan has used "Pudlo" for waterproofing the cement work. The makers inform us that this is only one of the many contracts abroad where their waterproofer has been successfully employed.

The foundation stone of a Wesleyan church in Holmhurst Road, Woodsent, Sheffield, has been formally laid. The cost is estimated at £5,000.

The February issue of the *A.I. Journal* gives portraits of Captain H. P. Maule, Hon. Artillery Company, Captain R. H. Maddock, 2nd Battalion West Surrey Regiment ("Queen's"), and Second-Lieut. P. Dangerfield, 1st Battalion East Kent Regiment ("The Buffs"); all of whom have been awarded Military Crosses. Four hundred and forty members of the Association are now serving with the Forces.

A deputation representing the Museums Association will be received by the Prime Minister to-morrow (Thursday). The association will make representations concerning the closing of national museums and art galleries, will endeavour to demonstrate the great and increasing part they have been playing in the life of the nation, and will suggest the possibility of rendering them still more valuable as institutions in war time.

The names of the three following members of the London Architectural Association have recently been added to the roll of honour of that body:—H. E. J. Dividge, Corporal, 15th Divisional Signal Co., Royal Engineers. Died on January 20, 1916, from wounds received in Gallipoli, on September 12, 1915. Henry Wood, Second-Lieut., 19th Batt. Royal Fusiliers. Killed in action, January 2, 1916. F. O. Marchant, Captain, 5th East Kent Regt. ("The Buffs"). Wounded, January 12, 1916 (Persian Gulf Expedition).

## Our Office Table.

The National Housing and Town Planning Council have issued the Preliminary Programme of a National Congress which will be held in April for the purpose of considering "Home Problems after the War." It is not suggested that the State should provide capital for this purpose before the close of the war. The Treasury have taken the view that the whole of the financial resources of the kingdom should be concentrated on war work, and it is clear that no capital should be used for this purpose except in munition areas. But the plans should be prepared, the designs should be exhaustively considered, the areas in which the houses are to be built should be properly planned, provisional agreements for the purchase of the land should be entered into, and all the preliminary details completed ready for actual building operations to be commenced without delay when the war closes. The capital to pay the cost of construction will not be required until that stage is reached, and, therefore, no question need arise as to the diversion of capital from the supreme task of winning the war. What is needed now is the exercise of foresight in preparing plans for the future and the realisation of the truth that in the interests of national honour we must so mobilise our reserves of national energy, ability and resource as not only to win the war, but to secure also that as a nation we shall, at the end of the war, be mobilised and ready to conquer the difficulties in regard to trade and employment which always follow great wars, and which will inevitably arise when this great war comes to an end. Architects and the building trade have provided great numbers of recruits for the new army. Knowing that the home demands for their labour will be great during the war, and wages good, these men have, nevertheless, volunteered for service. The least, therefore, that all can do is to recognise as a duty—standing only next in importance to that of winning the war—the provision of useful employment for them on their return to civil life.

A sharp discussion took place at the last meeting of the rural district council of Halesowen, held on Wednesday night, on a recommendation by the sanitary committee that in the event of either the surveyor or the sanitary inspector being called up for service under the "Derby" scheme, an application be made for the retention of the services of each as being indispensable. Mr. F. T. Goodman objected to the proposal; it was not a proper thing that the council should apply to the Recruiting Tribunal for exemption in the case of their officials in view of the fact that the tribunal consisted of five members of the council. The council ought to allow the applications to go before the tribunal, when the cases should be settled on their merits. He moved that the recommendation of the committee should be deleted. The chairman (Mr. J. B. Downing) seconded the motion, and urged that the council would act wrongly if they supported any application for the exemption of their officials. The motion was, however, defeated, the majority of the members studying their own immediate convenience rather than the interests of the nation. Evidently the Zeppelin raiders of the previous night did not operate in the vicinity of Halesowen.

In a report presented to the Herefordshire County Council at its last meeting, on the question of dealing with pot-holes in road surfaces, Mr. G. H. Jack, county surveyor, stated that there were several means of dealing with the difficulty, each calling for skill and method. The efficient and prompt dealing with pot-holes absorbed a large part of the whole question of road maintenance, and was indeed inseparable from the larger consideration. This forced him to the conclusion that the setting up of a separate plant and staff by the county council for this particular work, under existing conditions of management, would lead to overlapping and consequently unnecessary expense. The trunk roads should be under the constant attention of competent length-men, who should be

skilled in the work of the timely repair of pot-holes. The question of haulage was also involved. A light steam wagon, if owned and worked by the county council, would effect a saving in road repairs and haulage costs running into four figures per annum. The surveyor's report was adopted.

In the production of acetylene gas from the union of calcium carbide and water, the residue consists of a considerable amount of "carbide mud." Hitherto this has been considered useless, but the increased use of acetylene during the war has resulted in such large quantities of this by-product that German chemists have been trying to find a use for it. It is now announced in the *Chemiker Zeitung* (Berlin) that when mixed with 40 per cent. of building sand it provides a very usable mortar, which hardens well and binds the stones firmly together.

In his annual report, Dr. A. K. Chalmers, Medical Officer of Health for Glasgow, states that the population of the city as at June 30, 1915, is estimated at 1,074,577, compared with 1,055,950 in 1914. These estimates are based on a return of inhabited houses, prepared by the city assessor as at Whitsunday last, and suggest a further return of population towards the central districts of the city. The number of inhabited houses has increased by 3,976, and the re-occupation in recent years of houses formerly unoccupied is striking. The number of unoccupied houses in 1912 was 22,356, and at Whitsunday of last year it was 9,277. While the natural increase of population was less than 8,000, the estimated increase exceeded 18,000, the difference being accounted for by a balance of immigration. On the estimated population, the registered mortality represents a death-rate for the year of 18.9 per 1,000, compared with 16.8 for 1914.

The scheme for the laying out of the Buckingham House Estate, situated between Headingley Lane and Victoria Road, Leeds, has been approved at a formal conference at the Town Hall between members of that city corporation and the representatives of the owners. Under the terms of the draft scheme laid for the widening of Headingley Lane is given as to a portion forthwith, and as to the remainder within ten years' time, and in return the owners are to be permitted, amongst other things, to make residential roads of less than the width prescribed by the local by-laws, and are granted certain privileges in regard to building. The number of houses per acre is limited to 9.2, and the scheme is entirely confined to dwelling-houses, no other class of property, with the exception of the church and school, being permitted.

The streets, buildings, and plans committee of the corporation of Rotherham are considering the plans of the borough surveyor, Mr. T. P. Collinge, for five new roads at Brampton-Morthen.

The thirteenth century village church of St. Etheldreda, Horley, Oxon, which has been neglected for many years, is about to be restored, at a cost of £1,200, under the direction of Mr. William Weir of London.

Second Lieutenant Arthur Michael Durrant, of the 8th Battalion, Loyal North Lancashire Regiment (A.R.I.B.A., practising in Union Court, Old Broad Street, E.C.4), has been awarded the Military Cross "for conspicuous gallantry and resource near Fellingheim on December 23, 1915."

The church of St. Anne, Hoxton, which was built in 1863 and was partially repaired in 1902, is being restored from plans by Mr. E. T. Dunn, of Hford. The roofs were leaking, nearly all the windows were broken, and there was no heating apparatus when the present work was begun. The contract is let for £2,360.

At the meeting on Thursday of the Corporation of Wallasey, Alderman Parkinson, chairman of the Works Committee, reported that the contract for the new town-hall represented a total of £97,779, and they had already paid £59,469. The gross total was exclusive of the cost of finishing and roadmaking. The amount sanctioned and borrowed to date was £37,650, and the Local Government Board had now sanctioned the borrowing of a further £30,000 for the completion of the work in hand. The town-hall, which is Renaissance in style, is being built from designs by Messrs. Briggs, Wolstenholme and Thornely, of Liverpool, and was illustrated in our issue of May 16, 1913.

## CHIPS

Mr. Charles H. B. B. has been elected a member of the Association of Managers of Street Cleansing Works, and has been elected a member of the Manchester district branch of the same.

Mr. Ivo M. P. and A. R. B. have been elected members of the Council of the Royal Academy of Art. He is an inspector of the Royal Commission on Welsh Historic Constructions.

The Blackrock Urban Council have agreed to the Local Government Board's proposal to a supplemental loan of £2,260 for the completion of working class lodging houses, an inquiry was held on Monday at Blackrock by Mr. A. D. Price, M.P., C.E.

The Dean of Lichfield will, during the month, dedicate an oak rood to be placed in the chancel of the parish church of Stenstone, near Lichfield, in memory of Second Lieutenant Michael Vallancey Molloy, who fell at Hooge on August 9 last, in his twenty-third year.

At the last meeting of the town council of Edinburgh, the electric lighting committee's recommendation approving generally of the plans for the new power station at Portobello, and asking for a remit to obtain and submit estimates was, after some discussion, approved of.

Messrs. Hamilton and Neil, architects, of 157, St. Vincent Street, Glasgow, have been appointed to carry through the Greenock Corporation housing scheme of over 100 houses at a cost of about £40,000. The scheme is to proceed immediately, and is being assisted by Government.

The Rubery town-planning scheme of the North Bromsgrove Urban District Council, which has received the final approval of the Local Government Board, embraces an area of 544 acres. It provides for the construction of sixteen streets. The maximum number of houses to the acre is twenty, and the aggregate average twelve per acre. Not more than eight houses can be built under one continuous roof, or without at least a 6 ft. break between the properties. Open spaces will have an acreage of 13½ acres.

At the meeting on Wednesday of the Oxford Architectural Society, held at the Ashmolean Museum, a lecture illustrated by lantern slides was given by Mr. H. W. Taunt on "Twenty-two Lost Churches of Oxford," all destroyed in or before the fifteenth century. They included such buildings as the old Church of St. Frideswide, St. Mary of Osney, the old Chapel of Exeter College, Rowley Abbey. The list might have been increased by many more—the old Holywell Church, and St. John the Baptist on the site of Morton College Chapel.

Several buildings in progress for the Corporation of Ipswich will be completed by July, including the public health offices in Elm Street (£7,500), small-pox hospital (£6,260), temporary War Office pavilions at isolation hospital (£4,000), extension of refuse destructor, and various small street improvements. Schemes for a new bridge over the River Orwell, swimming and slipper baths, town planning, rearrangement of sewage works, tenement dwellings, public abutments and additions to the mental hospital, have been deferred until after peace has been declared.

Under the provisions of the Rostyl Dockyard Emergency Act development is in progress in the new part of Dunfermline. Some 500 houses are now in course of erection, and another 500 will be erected in the course of the year. Contracts are in hand for roads, sewers, and gas and water mains, and there will be added to as the number of houses are increased. The corporation propose laying a new water main from the reservoir to supply the new area, at a cost of £20,000 to £25,000.

At the annual meeting of the Liverpool Diocesan Church Building Society, held on Wednesday, the Bishop, who presided, remarked on the cheerful fact that they had available for grants the sum of £158, this comparing favourably with the time when the amount at their disposal was only £12,000. The year there had been opened two new churches, All Saints, Newton-le-Walls, and St. Paul's, Goose Green. He also in contemplation of embarking upon new churches, towards which they had subscribed £2,000 in excess of the £1,200. The funds of the Cathedral had not, as some people feared, interfered with church building, on the contrary, it had given additional impetus.

Mr. Percy Lovell, the secretary of the London Society, who is serving with the forces, has just been promoted to captain.

The extension of the Pennine Isolation Hospital, Derby, has been sanctioned by the Local Government Board, the estimated cost being £4,700.

Mr. D. L. Bayne, the present road foreman, has been appointed assistant surveyor to the Western District Committee of the Perthshire County Council.

Mr. Alexander Johnstone Murray, architect, of Aberdeen, only son of the late Alexander Murray, of Cruden, N.B., died in Aberdeen of heart failure on Saturday last.

The foundation-stone has been laid of a new National school at Killead. Mr. James Hunter, C.E., Lisburn, is the architect, and the contractors are Messrs. Kirkpatrick Bros., Victoria.

Members of the Architectural Association will be pleased to note that their late President, Lieutenant Maurice E. Webb, R.E., son of Sir Aston Webb, has been mentioned in Sir Ian Hamilton's despatch.

A new workhouse infirmary has been completed at Attleborough for the Wayland board of guardians. Mr. Herbert J. Green, of Norwich, was the architect, and Mr. Reuben Shanks, the contractor.

The Roman Catholic Church of St. Kevin's, Harrington Street, Dublin, has recently undergone an elaborate scheme of decoration. The work was carried out by Messrs. Early and Co., Camden Street, Dublin.

Mr. Beane, surveyor to the Chertsey Rural Council, who enlisted in the Royal Sanitary Corps some months ago, has been placed temporarily on the retired list owing to ill-health. He expects to resume his council duties shortly.

The provision of the supplemental water supply for Castlebar is approaching completion. Mr. E. K. Dixon, M.I.C.E., is the engineer, and the contractors are Messrs. Gallo-way and Son. The outlay will be about £4,200.

The death is announced of Mr. William Allison, of Allison, Fostett and Sons, builders, Golders Green, at the age of 78. The firm built the Carlisle Estate and Frognaal Gardens at Hampstead, as well as many houses in Golders Green, Hendon, and district.

Major Cecil J. Bradley, of the King's Own Yorkshire Light Infantry, has been awarded the Distinguished Service Order. He was for five years surveyor to the Goole Urban District Council, and just before the outbreak of the war accepted a similar position under the corporation of Bridlington.

The district church of St. Peter at Blunel, which is very dark and has low roofs, is about to be repaired from plans by Mr. E. M. Bruce Vaughan, F.R.I.B.A., Cardiff. The chancel will be extended, a new east window and dormer windows in nave roof provided, and the roofs of the aisles will be raised, the total estimated cost being £2,342.

Captain Francis Snowden Hammond, F.R.I.B.A., F.S.L., 11th Battalion, London Regiment, Finsbury Rifles, has been specially mentioned by Sir Ian Hamilton in his despatch for his work at Anzac. Captain Hammond, who is the architect and surveyor to the Cripplegate Foundation and also the parish of St. Giles, is the oldest son of Mr. F. Hammond, F.R.I.B.A., district surveyor for Hampstead, and son-in-law of the late Col. Byrne, C.B.

The first step toward establishing a big architectural library at George Washington University has been taken by the Washington Chapter of the American Institute of Architects. The chapter has voted to turn over its entire library, containing many rare and original volumes, to the university. The library will be established in the big drafting room of the Arts and Sciences building, Beverly. Mr. H. Harris has been appointed librarian.

At the last meeting of the Society of Architects' Lodge of Freemasons, held at the Holborn Restaurant, it was announced that the Worshipful Master, Mr. Herbert W. Lockton, had been gazetted a second lieutenant in the North Midland Divisional Royal Engineers, and that the following members were also on Active Service: Major T. Stewart Inglis, R.F.A., the Senior Warden; Second Lieutenant H. J. J. Fry, R.E., the I.G.; Captain E. M. Leest, Captain E. G. Fowler; and Lieut. W. H. May. Mr. F. L. Fitness, the Junior Warden, is engaged on aeronautical work.

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Effingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

\* Drawings of selected competition designs important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc.—we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither then nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

Telephone: Gerrard 1291.

Telegrams: "Timeserver, Estrand, London."

## NOTICE.

Bound copies of Vol. CVIII. are now ready, and should be ordered early (price 12s. each, by post 12s. 10d.), as only a limited number are done up. A few bound volumes of Vols. XXIX., XL., XLV., XLIX., LIII., LXL, LXII., LXIV., LXV., LXVI., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., XCVII., XCVIII., XCIX., C., CI., CII., CIII., CIV., CV., CVI., and CVII. may still be obtained at the same price; all the other bound volumes are out of print.

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cover to advertiser, an extra charge of Sixpence is made. (See Notice at head of "Situations.")

Advertisements for the current week must reach the office not later than 3 p.m. on Tuesday. Front-page advertisements and alterations or stop orders for serial advertisements must reach the office by first post on Monday to secure attention.

RECEIVED.—S. A. A. Ltd.—F. M. and Co., Ltd.—C. H. P. Ltd.—W. C. Co., Ltd.—V. de T. A. Co., Ltd.—S. H. B. Ltd.—C. D. and Co.—G. and B. J. W. and Son—M. G. and Co., Ltd.—F. A.—E. and R.—R. I. C. and Co., Ltd.—D. and C., Ltd.—R. C. and C. Co., Ltd.—C. W. and Co.—B. O. Co., Ltd.

PAID.—Yes.

H. J. L.—Please send.

T. L. R.—Will be given next week.

PROVINCIAL.—We think you are right; but just now, perhaps, your letter might seem an ungracious one.

N.—We have no information. If you have, and do not supply want a free advertisement, we shall be glad of further particulars. Any really efficient substitutes of British make should be made known now, that we may all use them in preference to those "made in Germany," and foisted on us here precisely in the old way when peace comes.

W. H. B.—Query is rather beyond the scope of our readers. We have transferred it to our other paper, THE ENGLISH MECHANIC, where it is much more likely to elicit the information you desire.

## TO ARMS!

4TH BATT. CENTRAL LONDON VOLUNTEER REGIMENT.

ORDERS FOR THE WEEK BY SUB-COMMANDANT C. STANLEY PEACH (ACTING COMMANDANT).

Officer for the Week.—Platoon Commander C. H. C. Bond.

Next for Duty.—Platoon Commander R. W. Corbett.

APPOINTMENTS.—H. Michelsen to be Sergeant Instructor of Musketry as from January 1, 1916.

To be Section Commanders (with rank of Sergeant, two ranks)—W. Currie to No. 2 section, No. 5 Platoon.

S. W. Bensted to No. 3 section, No. 5 Platoon, as from February 1, 1916.

GENERAL PARADE.—Saturday, 12th inst., at Chester House, 2.45 p.m., for drill in Battersea Park.

SCHOOL OF ARMS.—Tuesday, 6 to 7 p.m.

LECTURE.—Thursday, 10th inst., at Chester House, 5.45 to 6.45 p.m.

Instructional Parade by Company Commander E. J. Castell.

DRILLS AND PARADES.—For details of all drills and parade, see Notice Board at Headquarters.

As the War Office has taken over Archbishop's Park, Recruit Drills will be held in future in Battersea Park. Detailed orders will be given by Company Commander W. Hyman.

CAMP.—Week-end Camp at Woldingham, Saturday and Sunday, 19th and 20th. All names should be given as soon as possible to Company Sergeant-Major of each company. Detailed orders will be issued later.

ENTRENCHING PARADE.—Sunday next, 13th inst. Entrenching Officer on duty, Platoon Commander N. E. Brown, Victoria Station (L.B. and S.C. Railway) indicator board, at 8.35 a.m. sharp, for Special Train, 8.50 a.m. Also at Cannon Street (Bookstall), 9.15 a.m., for train at 9.30. Uniform, bayonets, and water-bottles. Midday rations to be carried. Return to Victoria about 6.15 p.m. Railway vouchers will be provided.

By Order,

MACLEOD YEARSLLEY, Adjutant.

CORRESPONDENCE.—All correspondence should be addressed to the Orderly Room.

DRILL HEADQUARTERS AND ORDERLY ROOM, Chester House, Euston Place, S.W.

February 9, 1916.

## MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY (To-day).—Royal Society of Arts. "The Organisation of Scientific Research," by Professor J. A. Fleming, F.R.S., 5.30 p.m.

Carpenters' Hall Lectures. "Sculptures of Rheims Cathedral," by Arthur Gardner, M.A., F.S.A., 7.45.

Association of Engineers-in-Charge. "Multiple Effect System of Refrigeration," by Wilfrid Stokes, 8 p.m.

Manchester Society of Architects. "Originality in Architecture," by L. Budden, M.A., F.R.I.B.A., 6.30.

THURSDAY (To-morrow).—University College, Gower Street, W. "The Most Recent Discoveries in Crete," by Dr. R. M. Burrows, 5.30 p.m.

Institution of Electrical Engineers. "The Testing of Underground Cables with Continuous Current," by O. L. Leard, 8 p.m.

Architectural Association of Ireland. "Round About the Adriatic," by J. White, 15, South Frederick Lane, Dublin, 8 p.m.

Sheffield Society of Architects and surveyors. "The Legacy of Past Civilisation to Present Culture," by F. G. Foster.

FRIDAY (Feb. 11).—Glasgow Architectural Craftsmen's Society. "Measurement of Wright Work," by George Herlertson, F.F.S., 7.45 p.m.

The interest rate on the £500,000 MacLennan-Warwick loan is 10 per cent, due 12 months after completion of repairs. According to the company's £22,661,462 budget, the £500,000 loan is to be repaid by 1982. The company is in a difficult financial position, it says, and that it has sought the £500,000 loan for any money it has will cost £13.6 and Mr. C. J. W. Smith is the architect.



# FOR Oliver's Seasoned Hardwoods,

APPLY TO—  
**WM. OLIVER & SONS, Ltd.,**  
120, Bunhill Row, London, E.C.

## TENDERS.

\*. Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

**AVONMOUTH.**—For various works at Verandah Shed N. at Avonmouth for the Bristol Docks Committee. Accepted tenders:—

130 ft. of 7 20 S.W.G. armoured cable:—  
Hensley's, W. T., Telegraph Works Co., Ltd., 6 yards 7/20 and 7 1/2 yards of 20 V.I.R. cable:—  
Callender's Cable and Construction Co.  
Conduit and fittings:—  
Simplex Conduit Co.  
Lamps and fittings:—  
Dorman and Smith, Ltd.

**ASHBOURNE.**—For erection of new piggeries at the workhouse, for the guardians:—  
Gaunt, G., Ashbourne (accepted) .. £175 0 0

**BALHAM, S.W.**—For the provision of lavatory accommodation for women conductors at Balham car shed, for the London County Council:—  
Swain and Selby, Upper Tooting Road, S.W. .. £175 13 6

Frost, H., Nottingham Road, S.W. .. 152 10 0  
Chappell Bros., Balham High Road, S.W. .. 118 0 0  
Gower, J., and Son, Trinity Road, S.W. (accepted) .. 117 14 6

**ELTHAM** of the chief officer of tramways. £125 5  
**BARNSEY.**—For extensions to the electricity works, for the town council. Accepted tenders:—

Turbo:—  
Willans and Robinson .. £2,500 0 0  
Low-pressure, high-tension and low-tension tenders:—  
British Insulated and Helsby Cables Co., Condenser .. 2,241 3 3  
Willans and Robinson .. 2,150 0 0  
Duck, Kerr and Co., Alternator .. 1,980 0 0

**BATTERSEA.**—For the supply of screwdown stop-cocks at the central station, for the Metropolitan Water Board:—  
Woodhouse and Co., Ltd. .. £286 1 0 (Accepted.)

**BLACKWALL TUNNEL, S.E.**—For the renewal of the electrical installation at Blackwall Tunnel, for the London County Council:—  
Callender's Cable and Construction Co., Ltd., Victoria Embankment .. £150 0 0  
Hensley's, W. T., Telegraph Works Co., Ltd., Bloomfield Street, E.C. (accepted) .. 100 13 8

**BRACKLEY.**—For the supply of granite for year ending March 31, 1917, for the town council. Mr. A. A. Green, borough surveyor. Accepted tenders:—  
Unbroken granite:—  
Jenkins, Ltd., Tuttle Hill, Nuneaton.  
Broken ditto:—  
Mountsorrel Granite Co., Enderby and Stoney Stanton Granite Co., and Groby Granite Co.

**CHINGFORD.**—For the supply of steel piles at the King George's reservoir works, for the Metropolitan Water Board:—  
British Steel Piling Co., Ltd. .. £111 12 0 (Accepted.)

**DEBRY.**—For supply of a transformer, for the town council:—  
British Electric Transformer Co., Ltd. (accepted) .. £110 0 0

**FARNBOROUGH, HANTS.**—For additions and alterations to Farley House, Farnborough. Mr. A. H. Duncay, M.S.A., Alpha Chambers, Farnborough, architect:—  
Bwins, E., Farnborough (accepted) .. £291 0 0

**FARNBOROUGH, HANTS.**—For erection of a pair of cottages (first part) on the Knollwood Estate, Farnborough. Mr. A. H. Duncay, M.S.A., Alpha Chambers, Farnborough, architect:—  
Jones Bros., Farnborough .. £750 0 0  
Wells King, W., Camberley .. 628 0 0  
Smith, T. G., Farnborough .. 585 0 0  
Hoskins and Jacobs, Camberley .. 580 0 0  
Bundey, W., Farnborough .. 575 0 0  
Bwins, E., Farnborough .. 563 10 0

\* Accepted.  
**FARNBOROUGH, HANTS.**—For the erection of a shop and dwellinghouse in Crane Road, Farnborough. Mr. A. H. Duncay, M.S.A., Alpha Chambers, Farnborough, architect:—  
Grosby and Co., Farnham .. £1,000 0 0  
Cair Bros., Hale .. 960 0 0  
Bundey, W., Farnborough .. 880 0 0  
Wells King, W., Camberley .. 840 0 0  
Bwins, E., Farnborough .. 790 0 0

\* Accepted, after revision.  
**GLASGOW.**—For the supply of one 6,000-kw. turbo alternator and condensing plant at Port Dundas electricity station, for the Glasgow Corporation:—  
British Westinghouse Electric and Manufacturing Co., Ltd. .. £25,622 0 0 (Recommended for acceptance.)

**GLASGOW.**—For the supply of one 6,000-kw. turbo alternator, Dick-Kerr alternator, and condensing plant at St. Andrew's Cross electricity station, for the Glasgow Corporation:—  
Willans and Robinson, Ltd. .. £25,480 0 0 (Recommended for acceptance.)

**GODALMING.**—For new borehole at the waterworks in Borough Road, for the Corporation:—  
Perkins-Macintosh Petroleum Tool and Boring Co., Ltd., St. Albans (accepted) .. £779 0 0

**GREENWICH.**—For the erection of building for war purposes on land belonging to the South Metropolitan Gas Co.:—  
Brightman and Co., Queen's Road, Watford (accepted).

**GREENWICH TUNNEL.**—For the fixing of new steel wire ropes for the lifts at Greenwich Tunnel, for the London County Council:—  
Waygood-Otis, Ltd., Falmouth Road, F.E. .. £51 0 0  
Easton Lift Co., Ltd., South work (accepted) .. 35 0 0

**HANLEY.**—For extensions to Victoria Bakery, for Mr. Charles Candwell. Mr. W. Campbell, Hanley, architect:—  
Salt, S., Leek (accepted) .. £1,465 0 0

**LANARK.**—For the erection of the remaining 150 houses at Mossend, to accommodate munition workers, for the town council. Accepted tenders:—  
Carpenter and Joiner work:—  
McDonald, J., Glasgow .. £16,016 11 10  
Digging, brick, and mason work:—  
McLachlan, J. J., and P. .. 13,589 6 3  
Plumber work:—  
Munro, G., Glasgow .. 7,312 12 10  
Slater work:—  
White, P., and Co., Glasgow .. 4,058 6 4  
Plaster work:—  
Bathgate, H. S., Glasgow .. 1,607 18 7  
Painter work:—  
Murray, P. S., Hamilton .. 741 6 7

**LANCASTER.**—For making alterations at the confectionery department at the central buildings, New Street, Lancaster, for the Lancaster and District Co-operative Society, Ltd. Mr. R. Jackson, 32, Market Street, Lancaster, architect. Quantities by architect. Accepted tenders:—

Joiners:—  
Pell and Ridley .. £124 15 0  
Plumbers:—  
Calvert and Head .. 82 9 6  
Mason:—  
Ward, R., Lancaster .. 25 11 0

**LEICESTER.**—For building a new factory, for Messrs. Lingham and Co.:—  
Chapman and Sons, Rutland Avenue, Leicester (accepted).

**LONDON.**—For the supply of (a) blue water tube, (b) steam tube, and (c) fittings, for the Metropolitan Water Board:—  
Stewart and Lloyds, Ltd. (accepted for all three contracts), (a) £154, (b) £43 11s. 5d., and (c) £81 5s. 1d.

**LONDON.**—For two months' supply of Portland cement to the various stations of the Metropolitan Water Board:—  
Byford, John, and Son, Ltd.; Williams, John, and Co.; and Buttl, E. R., and Sons (accepted as per schedules).

**LONDON.**—For the purchase of old metals and condemned stores at main drainage stations and depots, from the London County Council:—  
Webster, E. J., Stratford (accepted) .. £508 7 9  
Ward, Thos. W., Ltd., Silver-town .. 472 17 1  
Robinson, C. A., and Co., East Greenwich .. 468 8 10  
Livingston, J., and Sons, Gracechurch Street .. 383 1 7  
Johnson, H., and Co., Stratford (part tender) .. 30 0 8

**LONDON, S.E.**—For the provision of foundry plant for the central car repair depot, comprising (A) two double-head grinding machines, (B) a coke-breaking machine, and (C) shafting, bearings, etc., for the London County Council:—

	A.	B.	C.
	£ s. d.	£ s. d.	£ s. d.
Jackman, J. W., and Co., Ltd., Manchester ..	£ 80 0 0	—	—
Murphy, Stedman and Co., Ltd., Gray's Inn Road, W.C. ....	116 0 0	143 15 0	43 14 6
Selson Engineering Co., Ltd., Queen Victoria Street, E.C. 2 (21 percent discount) ..	96 0 0	—	—
Rowland, B. R., and Co., Ltd., Reddish, near Stockport, ..	90 0 0	—	—
Aldays and Onions Pneumatic Engineering Co., Ltd., Birmingham (not to specifications) ..	82 10 0	145 0 0	39 12 0
Green, Geo., and Co., Keighley ..	—	165 0 0	—
Lees, T. and R., Holbrook, near Oldham ..	73 0 0	—	—

Accepted.  
**ROSLY.**—For pulling down an old house on the Woolpack premises, and erecting on the site three cottages, for the town council:—  
Drewitt, G. J., (accepted) .. £650 0 0

**STAMFORD HILL, N.**—For the repair of the central road paving adjacent to the railway margins at Stamford Hill and in Kingland Road, for the London County Council:—  
Avenue Paving and Wood Paving Co., Ltd. (accepted) .. £308 5 10

**TOTTENHAM.**—For making-up footpaths temporarily at C Section, White Hart Lane Estate, for the London County Council:—  
Bloomfield, W. E. (accepted) .. £55 0 0

**WANDSWORTH.**—For altering and adapting Nos. 90 and 92, East Hill, for the London County Council:—  
Markham and Markham .. £681 0 0  
Triggs and Co. .. 467 0 0  
Marland, J., and Sons .. 455 0 0  
(It is now not proposed to proceed with the work until arrangements have been made for letting the property.)

**WARMISTON.**—For supply and delivery at Warmiston Station of 60 dozen sheep hurdles, with the necessary number of shores, for the Warmiston Farm Council:—  
Collins, J. S., Canfield Lockesley, Hants, 18s. per dozen (accepted).

Knapman, H. C., Estate Office, Norman Court, Court, Salisbury, 19s. 6d. per dozen.

**WEST END, SOUTHAMPTON.**—For supply of British macadam, for the South Stoneham Rural District Council. Mr. F. Heather, Chevin Side, Old Portsmouth, Southampton, district surveyor. Accepted tenders:—  
British Macadams, Ltd., 123, Cannon Street, London, E.C., 14s. 9d. to 15s. 6d. per ton.  
Clee Hill Granite Co., Ltd., Clee Hill, near Ludlow, Salop, 14s. 8d. to 15s. 6d. "

Aldon Clee Stone Quarry Co., Ltd., 14s. 9d. to 15s. 6d.  
Rockstone Supply Co., Shepton Mallet, 12s. 3d. to 12s. 5d.

**WHITBY.**—For laying cables and installing the electric light (approximately 65 lights) at Sneaton Castle, for Colonel J. W. Richardson:—  
Stephenson, L., Whitby (accepted)

## LIST OF TENDERS OPEN.

### BUILDINGS.

**Feb. 10.** Power House, Bradford Road Station, Manchester. For the Gas Committee.—F. A. Price, Superintendent, Gas Department, Town Hall, Manchester.

**Feb. 11.** Shelters on Espana Wharf, Port of Barcelona, Spain. Intencion General de Obras Publicas, Ministerio de Fomento, Madrid.

**Feb. 12.** School Building (about £3,600), Vallmoll, Spain.—The Municipal Authorities, Vallmoll, Spain.

**Feb. 12.** School-room at Siloh, Welsh Congregational Chapel, Treycynon, Abereide, for the Trustees.—T. Roderick, Architect, Ashbrook House, Aberdare.

**Feb. 15.** Reconstruction of No. 10 Warehouse, Hull. For the North-Eastern Railway Co.—A. Pollard, Architect, York.

**Feb. 17.** Works and Repairs to Buildings (One Year), Newcastle-on-Tyne.—For H.M. Works Commissioners.—The Secretary, H.M. Office of Works, Storey's Gate, S.W.

**Feb. 20.** Improvements and Extensions to Municipal Building, San Andres, Barcelona.—The Municipal Authorities, Barcelona, Spain.

**Feb. 22.** Goods Shed, Belfast. For the Harbour Commissioners.—T. S. Gilbert, M.I.C.E., Harbour Engineer, Belfast.

**Feb. 22.** Market, Malaga, Spain.—For the Municipal Authorities.—The Commercial Intelligence Branch, Board of Trade, 73, Basinghall Street, E.C.

**Feb. 23.** Workmen's Institute, Oakdale Village, Mon. For the Oakdale Institute Committee.—A. F. Webb, M.S.A., Blackwood, Mon.

**March 4.** Superintendence of New Convalescent Home for Men, Peganwy, North Wales.—For the Manchester and Salford Hospital Saturday and Convalescent Homes Fund.—Herbert H. Brown, F.R.I.B.A., 20, Brazennose Street, Manchester.

**April 15.** Central Sugar Mill, Isabela-Binalagan, Philippine Islands. For the Government Central Sugar Board.—The Commercial Intelligence Branch, Board of Trade, 73, Basinghall Street, E.C.

**No date.** Completing House and Shop, Pontyberem W. Griffiths, F.S.I., and Son, Falcon Chambers, Llanelli.

### ELECTRICAL.

**Feb. 10.** Electric Lighting Town, Ponte do Lima, Portugal. For the Municipal Authorities.—Secretaria Municipal, Ponte do Lima, Portugal.

**Feb. 11.** Pipe Line and Accessories, Lake Coleridge Electric Power Scheme, Wellington, New Zealand.—For the Public Works Office.—The High Commissioner for New Zealand, 13, Victoria Street, Westminster, S.W.

**Feb. 14.** Maintenance of Electric Wiring Installation at Workhouse Hospital, Horton Lane, Bradford. For the Guardians.—E. Hoiland, Architect, 22, Manor Row, Bradford.

**Feb. 16.** Electric Staff Instruments (large and miniature type), Melbourne.—For the Victorian Railway Commissioners.—The Commercial Intelligence Branch, Board of Trade, 73, Basinghall Street, E.C.

**Feb. 17.** Electric Lighting and Power Works, Ilchester Infirmary, Highgate Hill, N.—For the St. Mary, Ilchester, Guardians.—W. C. Hawthorne, 9, Queen Street Place, E.C.

**Feb. 18.** Material, Coburg, Australia.—For the Melbourne, Brunswick, and Coburg Tramways Trust.—The Melbourne, Brunswick and Coburg Tramways Trust, Coburg, Victoria.

**Feb. 18.** Turbo-Alternator (2,000 kw., 6,900 volts), Surface Condenser and Rotary Switchgear (1,000 kw.), Leigh, Lancs.—For the Corporation. A. T. Smith, Electricity Works, Leigh, Lancs.



# THE BUILDING NEWS

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### THE ORDER OF ST. JOHN OF JERUSALEM.\*

[WITH ILLUSTRATIONS.]

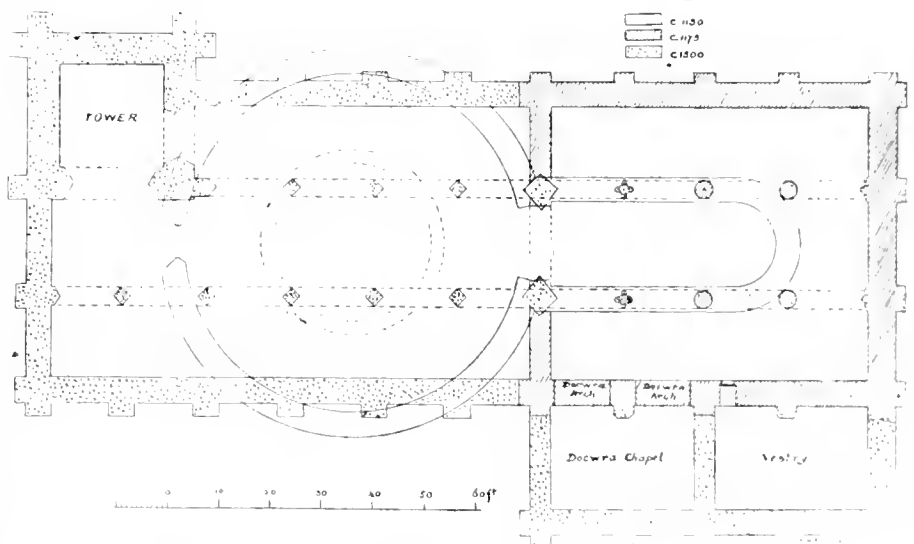
Mr. Henry W. Fincham is specially qualified to relate the history of the Order of St. John of Jerusalem, and to describe its Grand Priory buildings at St. John's, Clerkenwell, as the courteous "Clerk of the Library" at St. John's Gate, and as having personally originated, with borrowed pick and spade, the excavation of the crypt under the unpretentious fragment of a church, which resulted in its cleansing and renovation, under the direction of the late Mr. John Oldrid Scott, F.R.S.A. That was more than a quarter of a century ago, when Mr. Fincham had just been appointed rector's warden of St. John's, an office he has since held continuously. The author writes *con amore*, after exhaustive study of the bibliography of the Order and with an intimate knowledge of Clerkenwell, and the result is a bright, fresh, and readable account of the Order's origin, development, and vicissitudes, and a full and reliable description of the scanty remains of the Priory buildings, including St. John's Gate. Lists of the Grand Priors of England, of the rectors of St. John's, Clerkenwell, and of the known seals of the Grand Priory, add considerably to the interest and value of the volume, which is excellently got up, and is printed on superfine antique paper with sumptuous margins. An important chapter on the beneficent present-day ambulance and first-aid work of the Order, in establishment of the British Ophthalmic Hospital at Jerusalem, and in succouring the sick and wounded in the present war, is contributed by Mr. W. R. Edwards, secretary of the Order.

The Order, frequently termed the Knights Hospitaller, was the foremost of the orders of Christian knighthood founded as the outcome of the first Crusade. It was established about 1048, under Brother Gerard, by certain merchants of Amalfi who were trading to Palestine. Later on they formed themselves into a body of military monks, who undertook the protection of pilgrims journeying to and from Jerusalem, and built many hospitals and castles, their headquarters in the Holy City comprising three churches and halls in close proximity to the Church of the Holy Sepulchre. Brother Gerard was succeeded as rector by Raymond du Puy, who assumed the title of Grand Master, and formulated rules for the government of the Order. In 1291 the Christians were expelled from Pales-

time by the Saracens, and the Order removed to Cyprus, where their chief home was the castle of Kolossi, which has recently been again acquired by the English branch, who must have viewed with distrust the Government's recent offer of the island to Greece. For two centuries, from 1310 to 1522, their headquarters were in the island of Rhodes, from whence they were expelled by Suleiman. Eight years later, in 1530, a third south-east Mediterranean island, that of Malta, was granted to them by Charles V., and here they remained till June, 1798, when the craven Grand Master, a German named Hompesch, surrendered to

the beginning of Elizabeth's reign till its revival as a corporate body by Queen Victoria the Order had no foothold in England.

Mr. Fincham gives a lucid description, accompanied by illustrations from his own photographs and by plans drawn by himself, of the Priory buildings in Clerkenwell. With the exception of the crypt beneath the choir and fragments of the round nave of the church, which still exist, nothing is known, he admits, of the extent or appearance of the earlier structures, for most of the reproductions are fictitious. Thus the view in Home's "Every Day Book," reproduced



PLAN OF PRIORY CHURCH OF ST. JOHN, CLERKENWELL.

Bonaparte after the poorest show of resistance.

About 1130 Jordan de Brisset gave to the English Langue of the Order ten acres of land in Clerkenwell, and upon it they built the great Priory, their chief house in this country. They rapidly acquired other properties, including, at the suppression of the Knights Templars by Edward I., all their possessions, and the fortunes of the Order rose to its zenith at the beginning of the sixteenth century. At the Dissolution in 1540 the hospital, mansion house, and church passed into the hands of Henry VIII., and the members fled to Malta. For a short time in Mary Tudor's reign, 1557-58, the members of the Order again held possession of such of the Clerkenwell buildings as were left, but on the accession of Elizabeth their property was again seized by the Crown, and the members returned to Malta, to be dispersed over Europe in 1798. Thus from

in Thornbury and Walford's "Old and New London," is confessedly derived from a Cottonian MS. No. D. VIII., which relates not to Clerkenwell but to St. John's Monastery at Colebe. The late H. W. Brewer's elaborate history, published on January 1, 1893, was a purely imaginative as that in Home's "History of London," 1736. A pictorial map of 1855, H. Jones's representation is that of H. W. Brewer's 1656 for Digby's "Monks of the Priory" seems to be fairly accurate. The plan of the buildings existing at the time of the suppression is the work of Mr. A. W. Clapham, F.R.S.A., and is a script in the Record Office. The "The Survey of the Priory of St. John, 1656" by Mr. A. W. Clapham, F.R.S.A., and the "Seventy Joins in St. John's Gate" by the present author, are the only two references to the priory in the "Every Day Book."

The Church of the Priory stands in the north-east corner of the precincts, and

\* The Order of the Hospital of St. John of Jerusalem and the Grand Priory of England, by H. W. Fincham, member of the Order. Small quarto with large margins, cloth, bevelled boards, 88 pp., with 22 plates and many illustrations in the text, 6s. net. (London: W. H. and L. Collingridge, Aldersgate Street, E.C.)

of this the original choir remains as the parish church of St. John, Clerkenwell. At first it consisted of a circular nave 65 ft. in diameter, with an inner ring of columns to carry the roof. Eastward there was a short and narrow choir of three bays with an apsidal end, with no aisles, and beneath the choir was a crypt. Shortly before the consecration in 1185 the choir was lengthened by two bays and aisles were added, this addition being carried out in the crypt as well as in the choir. At some later date—probably after the burning of the church and other buildings during Wat Tyler's rebellion, 1381, when the Grand Prior, Sir Robert Hales, was beheaded on Tower Hill—the round nave was replaced by a rectangular, aisled nave of the usual form, and 90 ft. in length; of this portions of the north wall still exist in St. John's Square. At the north-west angle of the rectangular nave stood the great tower built by Sir Thomas Docwra, 1501-2, of which the foundations still exist below ground. There was also formerly a porch, and to the south of the choir a Docwra chapel and vestry abutted upon the entire length of the five bays.

In the third year of Edward the Sixth's reign, the nave, aisles, and bell-tower were

moved by the London County Council in 1906, when a narrow strip of the site was acquired by the Church authorities; this made it possible to reopen the windows of the crypt and restore the large windows lighting the church on this side. The south side of the church is shown on our page of illustrations, from a photograph by Mr. Fincham, and we also give herewith the author's plan. The small doorway in the second bay from the east in this wall led into the vestry, which extended the length of the two eastern bays. In the wall to the west of this entrance are the remains of two four-centred arches in brickwork, showing the Prior's chapel opened into the choir by arches as wide as the bays. The church contains a carved oak reredos and an altar table of 1723, and an oak pulpit, the upper part of the old three-decker from which both John and Charles Wesley preached; the fine stained glass in the five-light east window is the work of Mr. Archibald K. Nicholson.

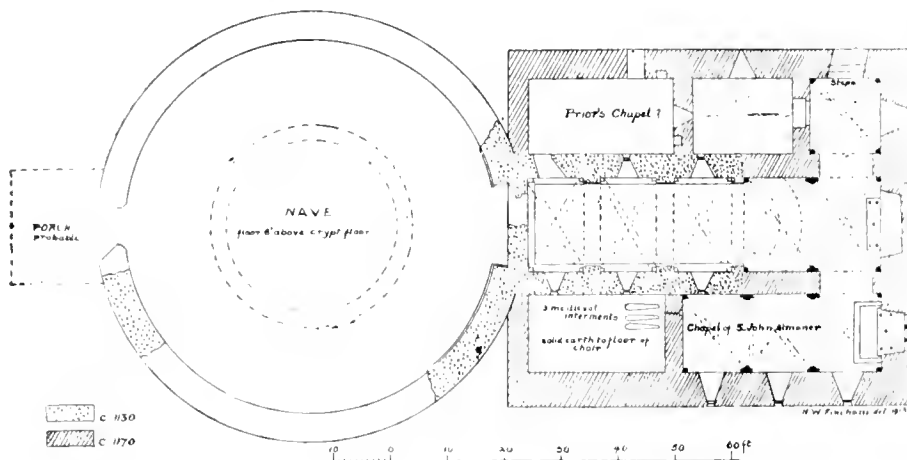
The very interesting crypt, of which we also reproduce Mr. Fincham's plan and photograph, consists of three plain Norman bays, with an eastern extension and chapel to south of Transitional character, the total length being 62 ft. 2 in. by a

and human remains, and is now clean, well-lighted, and again devoted to its original purpose. The author acknowledges his indebtedness in his architectural description of the church and crypt to Mr. E. W. Hudson, F.R.I.B.A., who will probably publish his exhaustive notes as a monograph in the Survey of Old London.

The great Gate House of the Priory standing across St. John's Lane, of which an etching by W. Monk is given as a frontispiece to the volume before us, is 64 ft. by 36 ft.; it was built by Sir Thomas Docwra in 1504, and consists of two towers 47 ft. in height, each containing four stories, and flanked by smaller towers, the two on the north of inner side containing the staircase. The towers are joined by a large room above the archway spanning the road. The archway is richly vaulted; a central boss bears the *Agnus Dei* upon a book with clasps, and of four other bosses two show the arms of the Order and two the arms of Docwra. The five shields on the other part of the wall, being badly decayed, were replaced in 1893 by the present shields. The ground-floor room in the east tower, originally the guardroom, is now the library, and over this is the chantry in which is an Elizabethan chimney removed from the old Baptist's Head Inn on the east side of St. John's Lane, which had been built as a residence for Sir Thomas Forster, Judge of the Common Pleas, who died there in 1612. The large room over the archway, now called the council chamber, is illustrated on another sheet from a photograph by the author. It was probably the guest chamber and the scene of the meeting of Henry VIII. and the Grand Master de Lisle Adam. It is lit by two large three-light windows, containing modern glass. The open-timbered roof and lantern are modern, replacing a mean, flat ceiling put in position while the gateway was an inn. Over the chimney-piece is a fine portrait in oils of Queen Victoria by Sidney Hall. In the west tower the principal apartment is that on the third floor, the office of the Secretary-General. On the south side of the gateway is a building, erected in 1903, for the use of the Order, from the designs of the late Mr. Oldrid Scott, and containing offices, ambulance stores, lecture room, and chapter hall.

In 1731 the Gate House was inhabited by a printer, Edward Cave, and here he printed and issued the "Gentleman's Magazine," for which the chief writer was Dr. Samuel Johnson. To the gate Johnson brought a young friend from Lichfield, with a taste for acting, and it was in the room over the roadway, now the council chamber, that David Garrick gave his first performance in Fielding's farce of "The Mad Doctor" to Cave's compositors and friends. In 1781 the "Gentleman's Magazine" was removed to Fleet Street, and the Gate became the parish watch-house, and later on it became an inn, with the name of the Jerusalem Tavern. In 1845 the Gate became very ruinous, and the local authorities ordered its thorough repair or demolition. Mr. W. Petit Griffith, F.S.A., an architect resident in St. John's, raised a public subscription and eventually restored the building to a safe condition.

We have quoted sufficiently to give some idea of the character of Mr. Fincham's volume. The work suffers somewhat from a lack of clear arrangement of its subject matter, and the addition of an index would have added to its value; but it deals in an interesting fashion with an interesting group of buildings and will be valued by all students of London topography.



PLAN OF CRYPT OF PRIORY CHURCH.

destroyed by gunpowder, the stone being utilised in building the Lord Protector's house in the Strand. In Elizabeth's time the Priory became the headquarters of the drama, being the residence of Edmund Tylney, master of the revels. Later on the Priory was in the possession of Sir William Cecil, Lord Burleigh, whose countess repaired the choir, which was solemnly reopened for worship on St. Stephen's Day, 1623. Having passed to the Earl of Aylesbury, it was afterwards known as Aylesbury Chapel; at the beginning of the eighteenth century it had become a Presbyterian meeting-house, and afterwards a private chapel. In 1721, the chapel was bought by Simon Michel, who built the present west front, together with a new roof and galleries, and presented it to Queen Anne's Commissioners, and in December, 1723, it was reconsecrated as the parish church of St. John, Clerkenwell. This church, as it stands today, consists of four bays of the choir, enclosed by the western wall, constructed by Sir Thomas Tresham on the return of the Knights in 1557, when they found the nave destroyed and the choir open to the weather. A portion of the north wall was rebuilt in 1834, but the east and south walls are chiefly of the twelfth century, but raised by Docwra to take his Perpendicular windows. The exterior of the south wall had for many years been hidden by some mean tenements, which were re-

total width across chapel of nearly 60 ft. Attached to the west wall are fragments of the interior wall of the former round nave discovered when the entrance was made in 1900. The south chapel is now used as one of Communion for the order, and the two northern ones as museums of collected fragments of masonry found during excavations on the site of the Priory buildings, mediaeval tiles, and some pewter alms-dishes of 1816, and a baptismal bowl of lignum-vite wood. There has recently been placed in the crypt a monumental recumbent effigy of a Spanish Knight of the Order, of the Langue of Castile, named Vergara, of about the middle of the sixteenth century, carved in white alabaster. The Knight, clad in plate armour, wears the eight-pointed cross upon his breastplate, and also on the shoulder of his robe; his head rests on a cushion, and at his feet kneels a little page. This effigy came from a chapel in the old cathedral of Valladolid, which was demolished at the end of the sixteenth century; it was presented in 1914 by Sir Guy Laking, the keeper of the London Museum. The author illustrates a large number of masons' marks, which indicate that at least twenty masons worked on the Norman fabric, and seventeen on the Transitional extension. With the exception of some seventeenth century brickwork in the north-west chapel the whole area of the crypt was cleared of rubbish, earth

# DILAPIDATION PRACTICE: SOME NOTES AND SUGGESTIONS.\*

By CHARLES F. SLATER, F.S.I.

(Continued from page 137.)

Damage by the enemies of the King was, as you all know, in the earlier stages of the war met by relief being given from Imperial funds, a committee being appointed by the Treasury to investigate the damage to persons and property sustained by the bombardment of the Hartlepoons, Scarborough, and Whitby, by German warships, the air raid on the Norfolk coast, and the air raid on Colchester and the neighbouring district. That was withdrawn last summer, and a system of Government insurance inaugurated. So far as dilapidations go on premises that are insured, there is one point worthy of note. The Government insurance covers only the interest of the party assured. It is not sufficient, for instance, that a lessor should insure against damage by aircraft and bombardment if his lessee should be liable to him under the covenants of the lease, for in that case he would be compensated only to such an extent as he would not be entitled to recover against his lessee. I have heard of a case where Lloyd's on a very open form of policy have taken the same line. I am advised that it is necessary that in all such insurances the person assured should contract for himself and in trust for all other parties interested. Where not done in the first instance an endorsement of the policy will suffice. Conflicting opinions exist on a lessee's liability to repair damage caused by the King's enemies. It is difficult to imagine that express covenants to repair will in such circumstances lose anything of their effect against the persons who have entered into them, especially as the contingency, however remote, could have been provided against by specific words in any covenant, and now, moreover, everyone has an opportunity to insure at relatively small cost. The obviously fair course would have been that all such damage arising from a catastrophe that no one could have foreseen should fall upon the Imperial Exchequer so that the burden be distributed over the whole nation. Since, however, those responsible for the national funds have sought to meet the question in the alternative of insurance, it would have been more consistent with a principle of equality of national burdens if the insurance had been made obligatory on all, and as far as buildings are concerned to cover all interests. Then those who by express or implied contract were bound to insure premises against fire should have been required to insure them against war risk, those bound to repay premiums on fire should be bound to repay on war risk, and so forth. Thus from Land's End to John o' Groats all would have contributed to the relief of those who through accident of situation were called upon to suffer. Although these remarks on insurance are not altogether unconnected with dilapidations, I ask your indulgence for intruding them since the matter is one of some urgency. My friend, Mr. Sydney Smith, has dealt very ably with the question in a paper he read at the Auctioneers' Institute quite recently.

## SCHEDULE OF CONDITION OF PREMISES.

Contested cases on dilapidations would be much diminished in number and simplified in issue if landlords and tenants entered into their respective obligations with a full knowledge thereof and with expert advice on the buildings which were the subjects of their contract. In the *Transactions* of this Institution covering the papers of Judge Wheeler and Mr. Pilditch, and the discussions thereon in 1886, it was advocated by several prominent surveyors that a schedule of condition of premises should be taken at the commencement of each lease. In the year 1903, the Royal Institute of British Architects issued a hand-book on dilapidations, in which they referred somewhat extensively to this question of a schedule of condition, and in which they gave models of repairing and surrendering covenants for embodying the same, together with a note of the practices obtain-

ing in Continental countries. The report on condition of the premises which the R.I.B.A. suggested should be added to every lease was in the form of an award by one, two, or three surveyors acting after the manner set forth in Section 91 of the London Building Act, 1894. It should detail:—

- (1) The premises comprised;
- (2) The construction of the buildings;
- (3) The defects.

A full description of the premises and of the forms of the whole and parts to be given; all rooms, or other sub-divisions of the premises, to be named or described; also accesses, passages, staircases, etc. This may be usefully accompanied by plans.

The nature of the construction to be set forth, as also the materials used for walls, roofs, partitions, floors, windows, and doors, and any special decoration.

A list to be given of the defects observed on a survey made on the date stated in the report; importance to be given to structural defects, such as walls out of the upright, bulged, settled, broken, or cracked; floors, roofs, staircases, etc., out of level; but minor defects, whether structural or not, should also be recorded.

To carry out this recommendation to the full in every case would seem to involve a vast amount of labour, including much that was unnecessary. There are cases, however, in which these instructions should be observed in detail, especially where the premises to be demised are so old or so badly constructed as to cause doubt in the minds of practical people about the fabric remaining good for the full period of the lease. The practice of attaching a report of condition of premises to a contract of tenancy appears to be growing very slowly, and I think one of the deterrent factors is that of the cost of preparing the same. We all know how frequently trouble arises about the lessee paying the lessor's solicitor's charges for the lease. This trouble is considerably augmented when on top of those charges a surveyor's modest fee for a plan or a schedule of landlord's fixtures is added. The addition of a further schedule at his cost would have on many tenants the same effect as the last straw is said to have had on the back of the proverbial camel. While I know it is the custom that the tenant should bear the expense of all these things, I cannot for the life of me see why the cost of documents which are prepared after all for the mutual benefit of the parties should not be divided. If every lease prepared by a landlord's solicitor were approved by the tenant's solicitor and had attached to it, if necessary, a plan and note of condition of premises at the date of the grant, there would probably be little or no occasion for dispute afterwards. Further, the repairing covenants would come under the review of the surveyors preparing the schedule, and an opportunity would thus be given of avoiding some of those mistakes which in the best of well-regulated offices may sometimes occur. From the R.I.B.A. handbook I take the following interesting note and amplification of Article 1730 of the French Civil Code, dealing with this subject:—

ART. 1730.—If the Etat des Lieux has been made between the lessor and the lessee, the latter must give up everything as he received it following that Etat, except that which has perished or is damaged by age or force majeure.

1. (a) The Etat des Lieux is a document which gives the description of the thing leased in every part. The form and state of each one of these parts, the material of which it is composed, the place which it occupies, and its state of preservation, are set forth therein in detail. Everything which presents any special feature is specially mentioned thereon.

(b) This Etat must be executed in duplicate. It may usefully be accompanied by plans.

2.—(a) This Etat des Lieux may be useful to the lessor; it establishes his proprietary right to all the parts of what is leased.

(b) It is indispensable to the lessee; it states the defects of the things leased, which, in default of such statement, are presumed to be in perfect condition—as it is stated in Article 1731.

3.—(a) The right to demand the making of an Etat des Lieux belongs equally to the lessor and the lessee.

(b) The Etat is often taken on behalf of the lessor and verified by the lessee, but the contrary will be the more reasonable course.

(c) It is the law that the costs and charges for this document be at the cost of the lessee, like the costs of the lease itself, of which it is only the complement—but the lessor who takes the initiative

in having the Etat taken must bear the costs, which follow, receiving his rights in regard to the security of reimbursement of those costs from the lessee.

## EFFECT OF DILAPIDATIONS ON THE VALUE AND MARKETABILITY OF REAL ESTATE

There are very few investments so unfavourably compared with freehold land and freehold property, yet many serious losses occur to investors solely through neglect, giving rise to dilapidation. The terms of years purchase governing the value of landed estate, as distinct from the composite property of land and buildings, is based largely on the element of indestructibility. So far as buildings are capable of preservation, and the extent to which in fact they are preserved, so far is the value of such composite property maintainable without serious depreciation, assuming that the site and the buildings are adequately adapted to the purpose for which they are used. It is clear that the question of upkeep of buildings is one of individual economy, and on reflection it will be seen that the question is no less one of national economy. There has been during the last fifty years an enormous increase in the buildings erected in this country, and even now the requirements of the population for buildings in which to live and to work are not adequately met. These buildings represent hundreds of millions of invested savings, yet their economical upkeep and care is for the most part without method. Depreciation in value by dilapidation may arise through direct neglect of the owner himself, by indirect neglect, such as through his tenant, or through default of neighbouring owners. I give three instances of what I mean. The owner of a house in a Yorkshire town lived in London. For thirty years he neither saw it himself nor took advice about it, but he received from a succession of yearly tenants £60 a year rent. When he died the valuation for probate made in a London solicitor's office was £1,000. The tenant was about to purchase at this figure when one of the executors insisted on having expert advice. The building was found to be in a deplorable condition, and indeed by his own neglect the owner had practically reduced his property to a building site. Not only that, but in losing touch with it over so long a period the owner had deprived himself of considerable income for several years. The rental value, if in repair, was about £180 (instead of £60), as was proved by the subsequent sale of the dilapidated house for £2,700. A street of houses in an inner suburb is leased on building terms to several lessees with the usual obligations to uphold, maintain, etc. By ignoring their obligations to repair, and by letting to a low class of tenant, the lessees increase their incomes, until a notice to repair is served by the lessor and complied with indifferently. The lessor does not wish to be associated with the action for forfeiture which he would be quite justified in undertaking, since it would make him in the public eye an oppressor of the poor, which he is not in fact. Therefore with an occasional notice to repair the street goes on from bad to worse, until it arrives at the slum stage. Depreciation is caused to all the surrounding property in the same way as a poisoned wound affects all the flesh in its vicinity. A house is let on non-repairing agreement to one of that numerous class of tenant who, either from indolence or malice, feels no sense of responsibility for the welfare of the property entrusted to his care. A settlement occurs, and the business of the tenant's estate is conducted so far as a dangerous structure is concerned, the owner is aware of it, and the necessity of repair has become more and more evident. It would have been if default had been made in dilapidation first appeared. Now it is evident that both the value and the marketability of real estate are damaged. I have called on several of these tenants, and very materially better results might be indicated a complete and thorough transfer of responsibility to the owner, the community, or the State, as the letter of the law can be either fairly observed or avoided altogether. Owners of large estates generally appoint someone more or less qualified to

\* Read at the ordinary general meeting of the Surveyors' Institution held on Monday, February 7, 1916.

look after them. This is comprehensible in the same way as a man employs an expert gardener if he wishes to get the best out of his garden. But a man who puts his savings into property seems generally to rely upon and even take a delight in "managing" it himself, which frequently means letting it drift so long as the rent is paid until he comes up against some serious trouble. It would be a bad day for ourselves and our kindred professions if we had to devote our attention to the collection of rents universally, which is what management often appears to amount to. But it would be much to the advantage of the general investor and also to his tenants if a system of regular expert inspection of buildings became more general. It is the common practice of large owners like the City Guilds to have their properties inspected and reported upon once a year, so that they are kept alive not only to the question of upkeep but to other matters affecting their investment. But the private investor who will spend £100 a year on a little garden is generally averse to an outlay of the few guineas that would keep him properly advised on his real estate investments. By periodical inspection dilapidations which constitute a serious depreciation in fabric are frequently avoided altogether, or dealt with expeditiously and cheaply, and if the practice were more general the market for what is probably the best investment for thirty people would be maintained in confidence instead of being regarded with some misgiving.

#### LAND ENQUIRY COMMITTEE.

In the 700 odd pages of the Report of the Land Enquiry Committee there are some references to dilapidations. As these indicate some degree of legislative unrest it may be well to consider them. On page 389 this Committee report on a "chorus of complaints," and they gave three illustrations of tenants' grievances:—

(1) Appropriation of tenant's improvements. Certain works were held on a sub-lease. There was a small piece of land in front, which was found to be a nuisance because roughs congregated on it. The sub-lessees approached their landlords, who were represented by a firm of solicitors in London, as to the taking in of this land; they in turn approached the freeholder, who offered to include the land in their lease for £3 per annum, whereupon they charged the sub-lessees no less than £20 per annum. The premises had been let to the sub-lessees on two consecutive leases, under which they occupied them for a period of thirty-five years. During the last nine years of this period they built sheds, etc., to the value of £6,000. When they determined the sub-lease, a claim was made for dilapidations of £650. This was settled by the payment of £275, in addition to a fine of £50, as provided in the current sub-lease for determining at the end of the first seven years.

The information given is not sufficiently clear for the understanding of politicians and other inexperienced persons to arrive at a just estimate of the facts. By careful study of the paragraph, and some little knowledge of the law and practice, further information is obtained, viz.: The tenants built the sheds, etc., for their own purposes, and not for the benefit of the landlords. The buildings costing £6,000 were presumably valueless for other purposes, since the lessees decided to determine their lease and pay a fine at the end of the first seven years rather than risk finding a buyer for it. If this be the best instance available to the Land Enquiry Committee of this particular form of grievance, it would appear to indicate its non-existence. (2) Claim in respect of dilapidations, although improvements were to be demolished.

A well-known firm of dealers and furnishers had a lease of premises in London on the X Estate. They desired a renewal of the lease, and approached the agent of the estate. It was agreed between the estate surveyors and the lessees that certain alterations and additions to the premises should be made. The terms for the new lease were almost settled when they were suddenly reversed by the agent. The revised terms were unacceptable to the lessees, and they decided to remove at the close of the current term. The site had been taken by an oil company. On obtaining vacant possession, the company proceeded to pull down the premises and erect an hotel. Although the premises were so completely demolished, the X Estate served the firm of dealers with a claim for dilapidations amounting to £125. The firm met the claim by informing the estate that, as their business was such that they could not afford to demolish their repairs themselves, the agent was to execute them. Ultimately the matter was settled by the payment of £350 to the estate.

The illustration here is also unfortunate. If the old lessees had settled instead of

"almost settled" terms for a new lease, and had themselves transferred their interest subsequently to the hotel company at a good profit, the case would not have been reported. The particulars do not divulge whether in the transactions immediately following the dis-appointment of the old lessees any interchange of compliments between the parties made it difficult either to offer or to accept concessions that otherwise might have been made. No surveyor is entitled to ignore the contract between lessor and lessee, and if the lessee has contracted to leave premises in repair he should be prepared to do so without grumbling. All the same, I have rarely found trouble in getting lessors to look leniently on such obligations where premises are coming down, and in some cases to waive them altogether. Some years ago I was instructed a few days before the leases expired to assess the dilapidations on a block of six shops. Each one of the tenants expressed surprise at my visit, and said they had been told by the lessor that as the premises were coming down shortly there would be no need for them to carry out their repairing covenants. When I asked my client if this was the fact, he said: "Of course it is; I reckon that move was worth £1,000 to me—what do you think?" I gave the obvious if unparliamentary answer so readily that within a few seconds my client left me without saying "Good morning." In the end he got about £100.

#### (3) Unreasonable claims for dilapidations.

A firm occupied two premises under one lease, and had connected them by a small footbridge. Recently, just before the expiration of their lease, the freeholders served them with a schedule of dilapidations, which, *inter alia*, required the removal of this footbridge. The amount claimed under this schedule of dilapidations was £52, although the freeholders intended to demolish the buildings on the expiration of the lease.

The illustration here given appears to refer to another case of demolition of premises, but it does not go on to say whether or not the lessors recovered the £52. On page 471 two other illustrations of tenants' grievances are given concerning respectively (1) no set-off improvements and (2) tenants' risks in resisting claims for dilapidations under present law. From the report of the latter it would appear to be one of those cases where the machinery of the law was put in action on improper advice, or possibly on some personal grounds such as may occur in any other human affairs. As to the former ("no set-off for tenants' improvements") it is well to record that "improvements" from the tenant's point of view are not always the same from the landlord's standpoint. Especially is this the case in business houses where these alterations most frequently occur. An instance I have in mind is the case of five houses with shops in the West End in two separate ownerships, now awaiting tenants. The lessee spent a large sum in what he called improvements, whereby, in order to provide extra workrooms, three of the houses were deprived of their staircases, bathrooms, and their lavatory accommodation. The lessee failed, and left to his respective lessors the necessity of a great expenditure to make their properties marketable again. Speaking in an institution where members are chartered for the protection of the public, and where one of the cardinal principles in the education of probationers is efficiency in work, I say without fear of contradiction that arbitrary disouts on dilapidations are almost invariably caused by unqualified persons, whether it be the parties themselves, uneducated agents, builders, or other indifferent advisers. The remedy which the Land Enquiry Committee say "it is not easy to suggest" lies ready at their hands. The phrase "able practical surveyor" is the sheet anchor of one Act of Parliament, and he appears in various forms in others. I suggest that no specification of dilapidations should be valid in any court of law unless prepared by an "able practical surveyor," who is also a member of one of the institutions where knowledge of the principles and practice of dilapidations is an indispensable qualification of membership. This would dispose of much of the difficulty of the Land Enquiry Committee on Dilapidations except their last recommendation, which reads as follows: "In our opinion the law as to keeping the buildings in repair is in a very

unsatisfactory condition. It is complicated and technical, and, being contained in many hundreds of decided cases, is difficult to discover and understand. It should be codified, and the consolidating measure should be followed immediately by an amending Bill dealing with many hardships and difficulties now complained of, which the space at our disposal does not allow us to particularise." From my earlier remarks it will be abundantly clear that I have not referred to the Land Enquiry Committee's Report for the purpose of proving that no need exists for legislation on the subject of dilapidations. But I seriously contend that no legislative proposals should be made upon this subject without some of that intimate knowledge and personal experience which the Committee give no evidence of having possessed. Politicians are at heart well-meaning and much-abused individuals. They are only human, and they find difficulty in mastering what they call a "complicated and technical" subject. When they pass laws which we cannot fail to condemn, the blame should be on ourselves unless we offer them that enlightenment which it is in our power to give. In compiling these notes I have endeavoured to lay stress on some of what I will call the blemishes of dilapidation law and practice. Possible remedies I have only hinted at here and there, because it is not for any single member of this assembly to lay down emphatically so extensive a proposition; but where those remedies are likely to be the subject of legislation, I trust we of the Surveyors' Institution will act up to our clear duty and suggest the lines rather than wait to criticise the measure. Nearly thirty years ago no less an authority than Mr. G. M. Freeman, K.C., an eminent Associate of this body, suggested that a code should be prepared by a committee of lawyers and surveyors to this same end. With the example of the Finance (1909-10) Act, 1910, before us, I am wondering whether, to meet the legislative unrest I have mentioned, something like a model Bill might not be prepared by one or more of our own legal Associates and discussed here. This would be carrying a little farther such work as the council places from time to time on the provincial committee of the institution. My experience of one of the largest of the latter enables me to affirm that in these across-the-table discussions our individual political views are not permitted to trespass on the practical side of the subject. I trust that nothing I have said has indicated a political bias one way or the other, for no one depletes more than I do the occasional flourish of some political trumpet in this hall. The foundations of our institution were laid in that honesty of purpose which is very far removed from the vote-catching antics of the hustings. In the work of the institution as a corporation the non-political tradition has, I believe been strictly observed, and in the suggestion I have made there is nothing which need cause a departure. As surveyors we have no time to waste in the easy and possibly attractive pastime of personal or impersonal abuse, but we have the duty upon us of providing the material for constructive legislation, where needed, in all branches of the work which binds us together as a professional society.

#### LEEDS SCHOOL OF ART: DEPARTMENT OF ARCHITECTURE.

As a result of a recent conference between the Board of Architectural Education of the Royal Institute of British Architects and representatives of the Leeds Education Authority, the Department of Architecture of the Leeds School of Art has been placed on the list of architectural schools "recognised" by the Royal Institute of British Architects.

It is believed that Leeds is the first school of art to have recognition granted to its department of architecture.

The recognition has been granted after visits of inspection by deputations of the R.I.B.A., and marks their approval of the work done and the curriculum of study arranged by the department. As a consequence of recognition, students passing satisfactorily through a prescribed course of study become exempt from the R.I.B.A. intermediate examination.

## Corrente Calamo.

One remarkable effect of the Earl of Derby's recruiting scheme has been that a large number of professional men from the technical trades, including architects, engineers, and surveyors, having realised that they must no longer delay offering their services to the country, have applied to the Artists' Rifles, O.T.C., for direct enlistment. Moreover, of those who have attested under the scheme, many have felt impatience for their groups to be called up, and, solving the problem for themselves, have applied for and obtained transfer from Army Reserve B, in which Derby recruits are placed, to some Regular or Territorial unit. This course is particularly favoured by men whose education and social position render them eligible for commissions. The transfer of men who have been placed in Army Reserve B may be effected as soon as possible after they have been approved and found medically fit, or postponed until a later date, provided that at such later date the requirements of the service require the transfer. The corps has a special class for training members who desire to obtain commissions in the Royal Engineers and Pioneer Battalions, and for testing candidates for such commissions.

Contracts of service, especially in the engineering profession, are now in a curious legal position. The old law was that covenants in restraint of trade, or of skill, were void as being against public policy. But by a long series of decisions this principle was whittled away in practice, and the courts held many clauses to be "reasonable," and so valid, and enforceable by injunction, which effectively prevented a skilled man from earning his livelihood in the work he knew best, and also helped them in their trade competition. In fact, private interest clashed with public policy. Employers were rendered able to tie down a rising servant and keep him for years making money for them to his own loss and that of the community. The recent decision of the House of Lords in the case of "Herbert Morris (Ltd.) v. Saxelby," which is now a leading authority, has brought things back to the old and juster position. The plaintiffs were engineers in various good and special lines. In 1911 the defendant was engaged by them as their head draughtsman at a salary of £3 17s. 6d. for two years certain. Under his contract of service, the defendant agreed that, on leaving them, he would not go into any similar business for seven years, within the three kingdoms. When his service ended he had soon after gone to a firm of engineers at Manchester, admittedly rivals of the plaintiffs, who now claimed an injunction. Mr. Justice Sargant had dismissed the action on the ground that the defendant was entitled to use his skill and knowledge and training to the best advantage in his own interest and that of the public. The Courts of Appeal by two to one confirmed this, and now four law Lords have finally supported the defendant, basing their decision broadly on that of the judge of first instance, and upon the old grounds of public policy in favour of freedom to work.

"Form Four," which has already been severely shaken to pieces in the Courts, came before the House of Lords last Thursday in a ragged condition. It was pleaded that, even if the form required information which the Commissioners were not entitled to re-

quire, the only result was that the parties were not bound to make any return, but that a return having been made, it was a return within the meaning of Sections 26 (2) and 23 (2) of the Finance Act, 1910, and none the less because it need not have been made. The case arose out of a demand for increment value duty in respect of minerals, the nature of which was not specified in the return, and of the capital value of which no estimate was made. At April 30, 1909, the surface of the land was in occupation by a leaseholder, and the return was made by the owners in October, 1910. In August of that year the owners had been in negotiation with a colliery company to take over the land and hereditaments, which were conveyed to the company on March, 1911. On August 22, 1911, the Commissioners made provisional valuation of the surface, and on September 19 they refused to allow an amendment of the return to include the valuation of the minerals. When later the Commissioners demanded one fifth of the entire proceeds as increment duty, without any deduction of the value of the minerals as at April 30, 1909, the owners of the land contended that they were not bound by the return, owing to legal defects in the notice and form. They said that as it was made in compliance with a demand which had no legal force, the return itself might be treated as of no effect. Mr. Justice Warrington decided in favour of the Crown, but the Court of Appeal reversed his decision. Two days have been occupied by the hearing in the House of Lords, and if the interjectory remarks of their lordships are any indication, the considered judgments should be more than usually interesting.

Mr. G. Alexander Wright, H.M.Q.S., of 354, Pine Street, San Francisco, well known there as a British architect to many of our readers, and throughout the United States as the persistent advocate of the quantity system, finds it necessary to remind his fellow members of the American Institute of Architects that certain methods which some are instigating as worthy of adoption in connection with the system are likely to be advantageous neither to architects, builders, nor building owners. First: The model quantities suggested, and improperly so, force the bidder to refer back to the drawings and specifications before he can determine his itemised cost values. A information necessary to determine items of cost and quantity should appear in the quantities. To give this is clearly the duty of the quantity surveyor. His fee covers this service. Second: The suggested protection against incorrect quantities by a surety company bond becomes a doubtful issue if the quantities contain covering clauses capable of being so construed in a court of law as to protect the parties who prepared the quantities, and necessarily their bonding company also. Architects who have had experience following a loss, with the attorneys for a bond-man, will realise what they might expect when the language of the quantities makes it obligatory upon a bidder, before bidding, to examine all the drawings and specifications (with a view, of course, to his including every cost in his bid). There is a condition, a loophole here, which should not be. The very essence of a bill of quantities is that it should give the bidders the fullest direct information possible to enable them intelligently to price each unit, and not make "covering" clauses, telling bidders where they can find that information for themselves. This is not quantity surveying, nor will it

satisfy either architect or owner when he once understand the kind of service he is entitled to receive.

Third: The labour and material "descriptions" in the sample quantities issued by the firm referred to are insufficient to enable an intelligent competitive unit price to be put against most of the items. If bidders who are obliged to use such quantities are to be compelled to examine the whole of the drawings and specifications to ascertain all cost and expense incident to such items (and this is the exact language used in the quantities), then the value of such quantities to a bidder is limited, and is but little, if any, improvement upon "no quantities at all." Possibly it may not be the intention to bring about this condition, but it is there nevertheless. Such a document falls very short of the standard used where the quantity system is in daily operation. There is, of course, no criticism offered as regards the methods employed by parties who simply take off quantities to meet the individual requirements of any contractor or architect, but the whole procedure must be considered from a totally different view-point when the object is to follow a quantity "system" for all, and which requires the personal support of the architect, the owner, and the contractor. We all hope that when a quantity system is once started in America, it shall be at least equitable and consistent, otherwise failure must result, and this would indeed be a misfortune after so many years of preliminary effort.

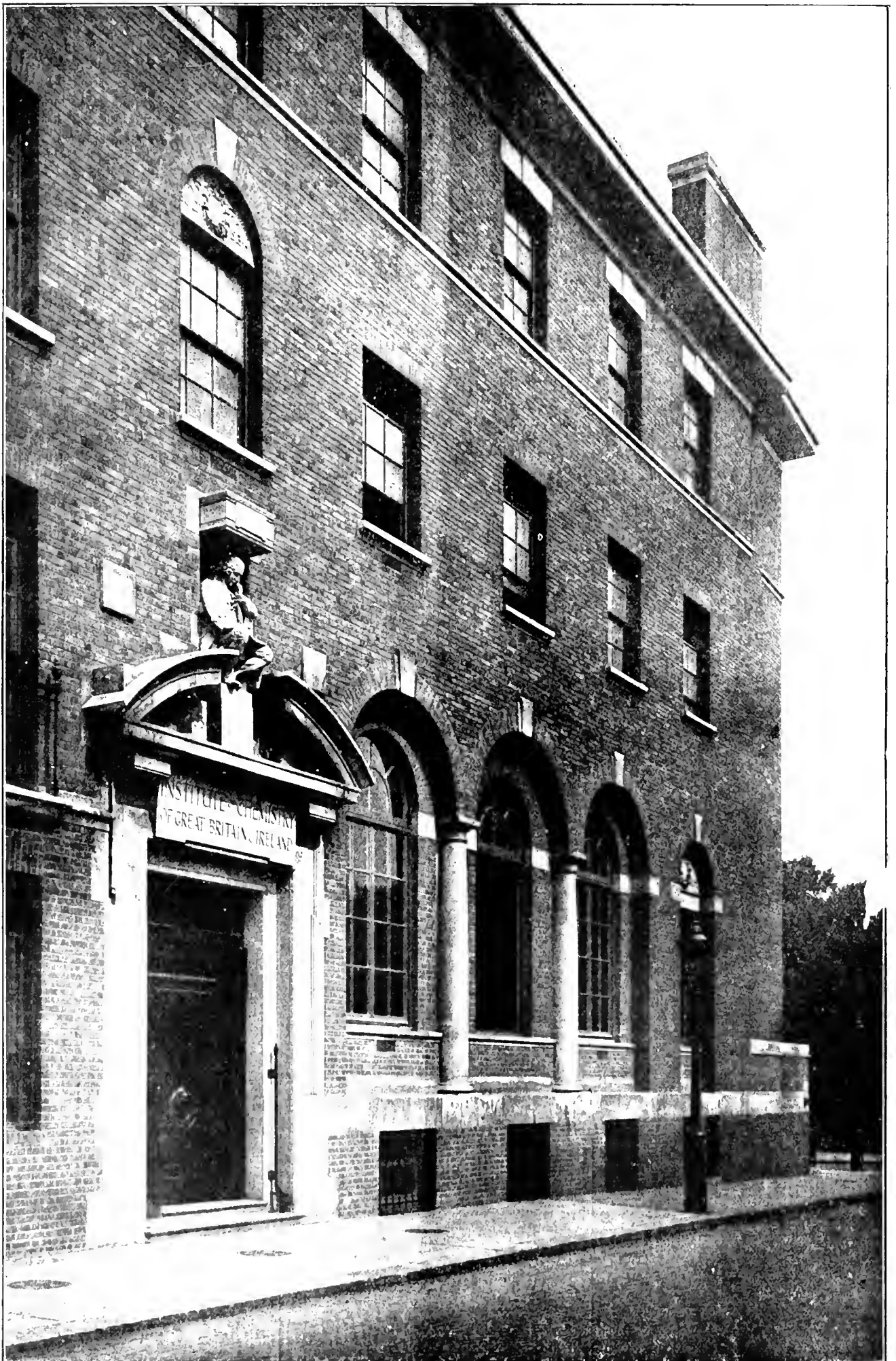
It is generally known among American architects that Mr. Wright is always available when desired, and glad to place his experience with the quantity system at the disposal of anyone who is sincere in his efforts to bring about better contract methods. Some facts appertaining to the quantity system, and his interest in it, are perhaps best illustrated by the report made to the San Francisco Chapter A.I.A. upon the return of the Chapter delegates after the Convention of the A.I.A. at New Orleans in December, 1915, when a report upon quantity surveying was presented. The San Francisco delegates' report upon the convention proceedings contains the following, viz.:—

The report on "quantity surveying" developed the fact that twenty years or more of the endeavours of our fellow-member G. Alexander Wright to have introduced in the country the system of quantity surveying have failed of any official recognition, and that the credit due him for its present status in this country is likely to be diverted to others. Numerous literature in the form of addresses, papers, pamphlets, magazine articles, etc., through a period of more than twenty years over Mr. Wright's signature; a sort of missionary period of constant, energetic, self-sacrificing endeavour to an ideal, for public benefit and service (in which there can be to him no material profit), should insure to him just recognition and honor, now that the advantages of the system are likely to produce the good for which he has so devotedly laboured.

It appears to us that the quantity system is now of sufficient importance to the American profession to justify the early appointment of a "special committee" of the A.I.A. to consider it. Its members should be selected the advantage of experience, and should be the workings of the quantity system, and the ability to consult surveyors, and to estimate particular work, but they should not be American men of letters, or men of letters, or expert estimators. By the appointment of a special committee, the quantity system will be properly presented and considered.

The San Francisco Chapter has adopted a proposal to build a new bridge over the canal at the Sausalito, and improving the approach to it, at an estimated cost of £300.





[Ed. Long & Photo]

THE INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND, RUSSELL SQUARE, W.C. SIR JOHN J. BURNET, LL.D., R.S.A., F.R.I.B.A., Architect.



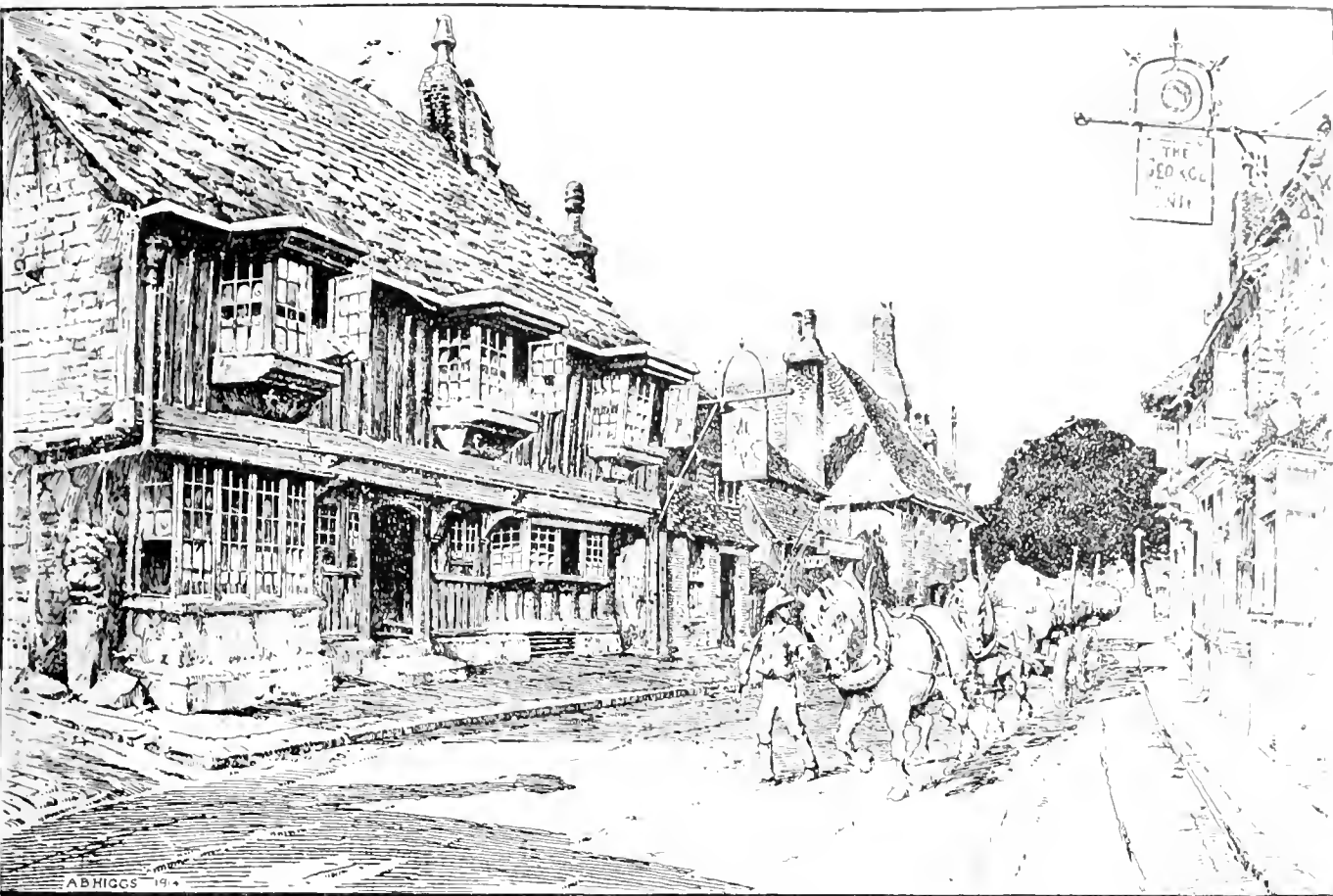




ANNE OF CLEVES HOUSE. I.  
 SKETCHES OF HISTORIC DOMESTIC BUILDINGS IN THE HOME COUNTY  
 BY MRS. A. B. HIGGS



OLD FARM HOUSE EASHING NEAR GODALMING SURREY

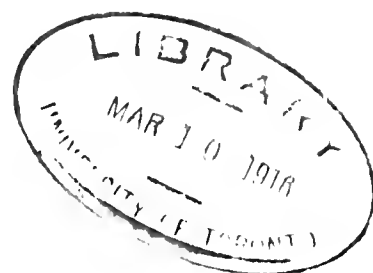


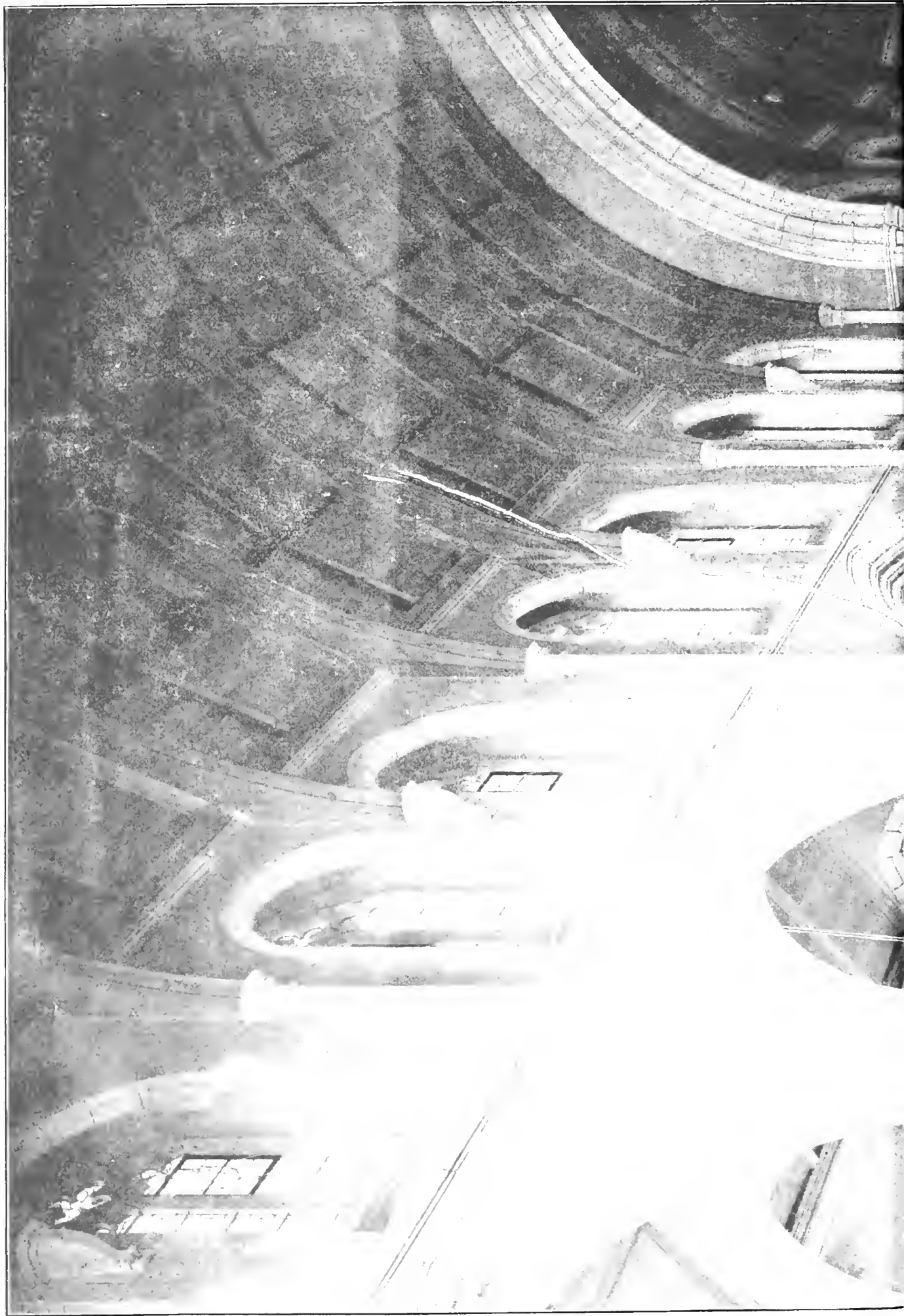
ENGLAND

THE "STAR INN" ALFRISTON SUSSEX  
THE "MOOT HALL" THAXTED ESSEX

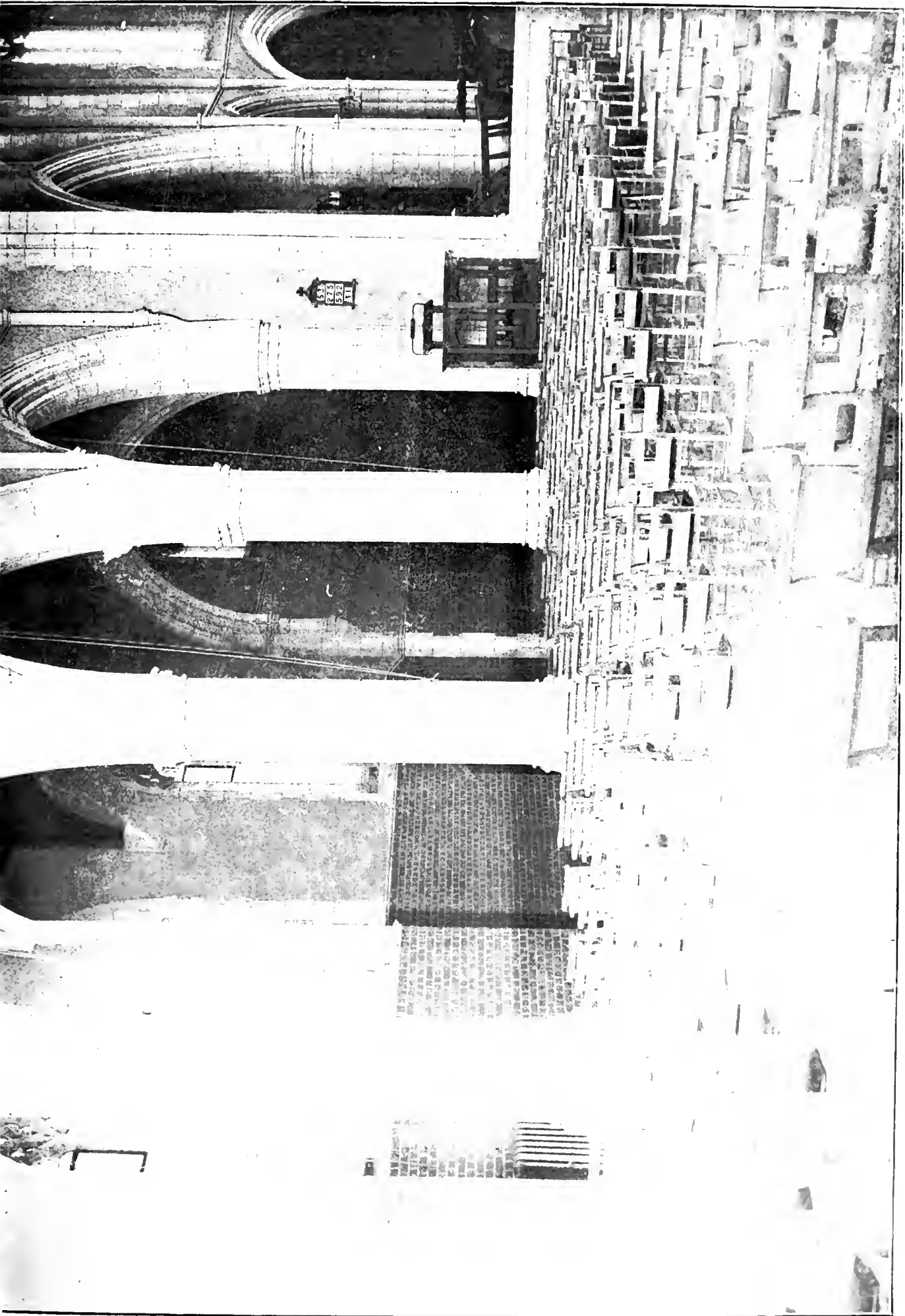






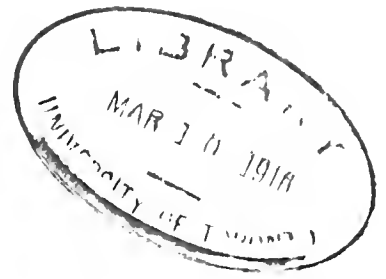






INTERIOR. ST. BARNABAS' CHURCH, NORTH FINCHLEY.—MR. J. S. AIDER, LIC.R.I.B.A., ARCHT.

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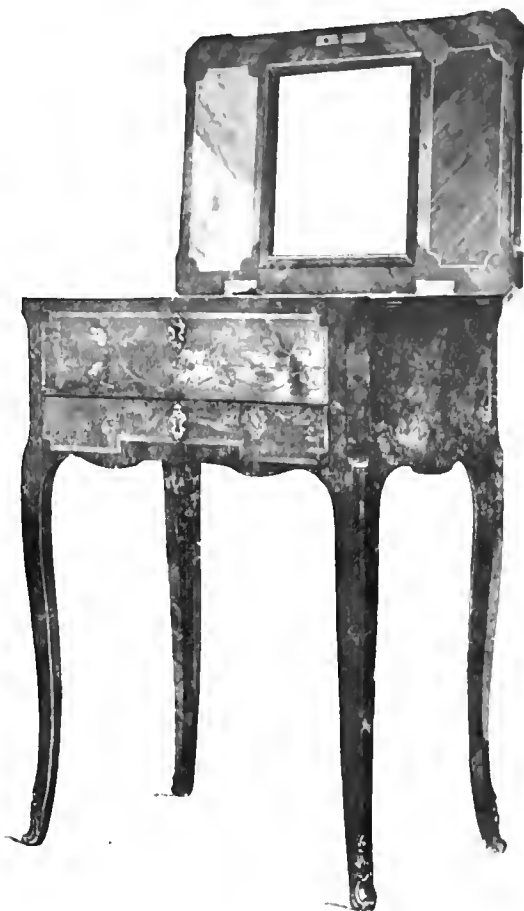
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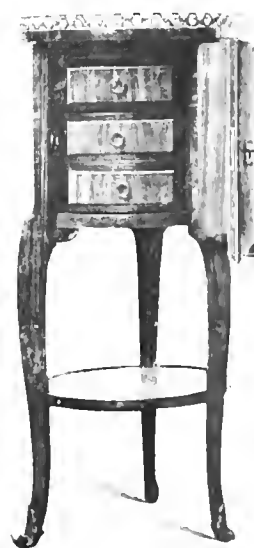
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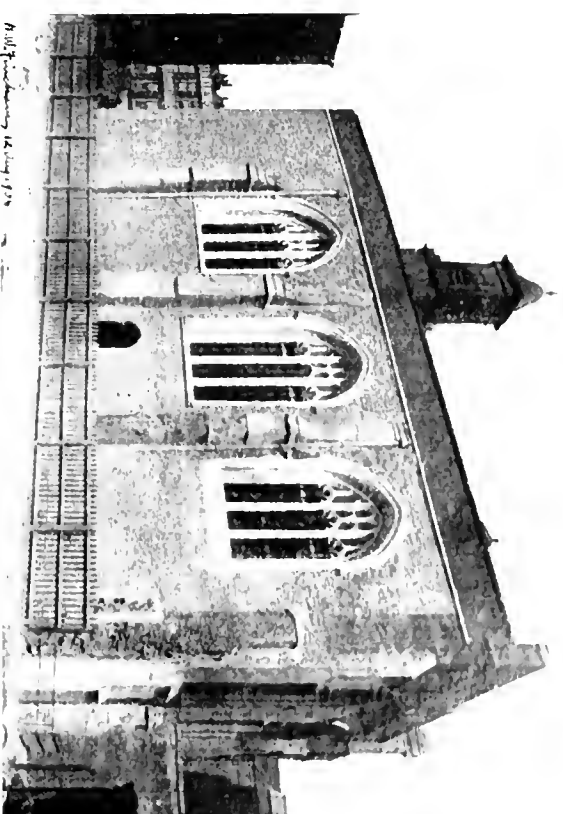
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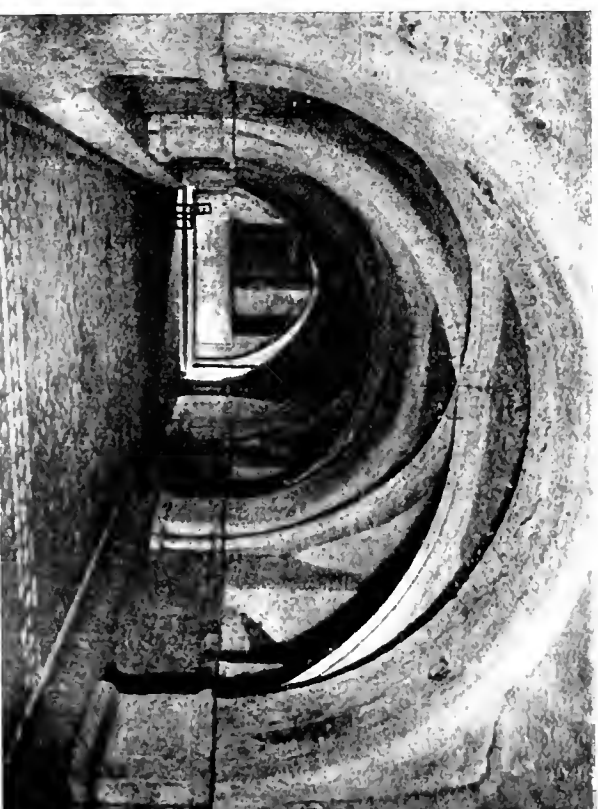




THE COUNCIL CHAMBER, ST. JOHN'S GATE, CLERKENWELL.  
BUILDINGS AT CLERKENWELL OF THE ORDER OF ST. JOHN OF JERUSALEM.—From photographs by Mr. H. W. FINCHAM.



ST. JOHN'S PARISH CHURCH, CLERKENWELL, SOUTH SIDE.



NAVE OF THE CRYPT, ST. JOHN'S CHURCH, CLERKENWELL.  
NAVE OF THE CRYPT, ST. JOHN'S CHURCH, CLERKENWELL.—From photographs by Mr. H. W. FINCHAM.

## Our Illustrations.

### INTERIOR OF ST. BARNABAS' CHURCH, NORTH FINCHLEY.

We published the plan and some particulars of this building in our issue of August 18 last, and on November 5 we gave a fine view looking towards the choir, from a beautiful photograph by Mr. Richard Moreland. To-day we give a view to north-east from another capital photograph by Mr. Moreland. Mr. J. S. Alder, Lic.R.I.B.A., of 1, Arundel Street, Strand, W.C., is the architect.

### OLD FRENCH FURNITURE FROM 8, CHESTERFIELD STREET, MAYFAIR, W.

These fine pieces of French furniture were sold by the direction of His Excellency the Lord Raglan, C.B., Lieut.-Governor of the Isle of Man, sole executor of the late Hon. Katherine Somerset. The pieces illustrated show—No. 52, one of a pair of Louis XV. King-wood marqueterie commodes, ornamented in flowers, with band of coloured wood, cabriole legs, chased ormolu mounts, and marble tops, 25 in. wide, by A. Couturier, Maître Ebeniste. The pair realised £1,522 10s. No. 56, a Louis XV. table of King-wood, ornamented in marqueterie work of flowers, with band of coloured wood, shaped rising top, and brass gallery, enclosing two walls, with mirror at back, drawer under, on cabriole legs, with chased ormolu mounts, 20 in. wide. This piece fetched £283 10s. No. 59, a Louis XV. King-wood commode of two long drawers, with shaped front on cabriole legs, decorated flowers in marqueterie, with bands of coloured wood, mounted in ormolu, with centre medallion 53 in. wide, was sold for £430 10s. No. 55, a Louis XV. King-wood marqueterie writing-table, with slide and drawer at side, shelf under, brass gallery, cabriole legs, and ormolu mounts, 15½ in. wide, was sold for £194 5s. The illustration adjoining the above shows No. 56, before-mentioned, with top raised, displaying fittings. Beneath is Lot 53, one of a pair of Louis XV. marqueterie commodes, with shaped fronts, richly mounted in ormolu of scroll and leaf design, cabriole legs, and grey marble tops, 32 in. wide, by Robert Victor La Croix, Maître Ebeniste, the pair fetching £1,155. Lot 57, adjoining the above is a small illustration of one of a pair of Louis XV. King-wood cylindrical cupboards, on cabriole legs, decorated in marqueterie, with utensils, flowers, etc., chased ormolu mounts, and brass galleries. This pair of cupboards fetched £661 10s. The pieces of furniture here mentioned brought in the grand total of £3,247 5s., many of the other numerous lots fetching equally high prices. The sale was successfully conducted by Messrs. Knight, Frank, and Rutley, of Hanover Square, W., to whom we are indebted for our illustrations.

### SKETCHES OF HISTORIC DOMESTIC BUILDINGS IN THE HOME COUNTIES OF ENGLAND

This sheet of pen-and-ink drawings by Mr. A. B. Higgs, of Eastbourne, shows four well-chosen examples of highly piquant old vernacular and unassuming buildings, eminently representative of British village architecture still to be seen in many parts of the country, and particularly in the southern districts, known as the "Home Counties." *Alfriston*, sequestered among the South Downs, in Sussex, is deservedly popular as a favourite hunting ground by water colour painters. For a long while the ancient hostelry, now called "The Star Inn," was famous among casuals and frequented by evildoers as a sanctuary within the jurisdiction of the Abbots of Battle Abbey. Its weather-beaten timbers and old beams bear the marks of age, and carry the arms of the Dudleys. Other carvings may be seen enriching the roof-tree of this old public-house, depicting St. George and the Dragon, St. Giles, and the badge of St. Richard, of "Chichester." The post-and-panel staircase, or "Priest's House," at Alfriston, is more architecturally befitting in design than many better known examples elsewhere more easy of access. "The Moot Hall, Thaxted," in Essex, is a three-storied wooden structure, decorated in modern by-laws, with oversailing upper

floors. It is situate in the Market Place, amidst several quaint old houses built up and down the street, and quite in keeping with the rest. Formerly a pair of long poles, furnished at their ends with a strong iron hook, were kept in this Moot Hall for public use in cases of fire, when men pulled away the thatch and roofing or other parts of burning buildings, long prior to the introduction of manual fire engines. Evil disposed and guilty individuals were taken to the Moot hall lock-up, an important part of the premises. On the ground floor, the building consisted of an open-timber sort of arcade, and as such among market halls, such as that at Ledbury, the Thaxted one was not uncommon, but its detail is exceptional in some respects, and rich in effect. The council chamber occupied the first floor, and here the extinct corporation commonly at one time held its meetings; but in 1714 municipal lapses occurred, and the room was adapted to the needs of the then flourishing parish school connected with the parish church hard by. The apartment, as the school increased, became no longer equal to the wants of educational class work, consequently at the present day it is a public reading-room. The glory of Thaxted centres in its splendid old church, which is distinguished by an excellent tower and graceful octagonal spire. The long chancel is of early fifteenth century date, the nave and aisles being fifty years earlier in style, while the transepts are older. Thaxted lies half-way between Dummow and Saffron Walden, and the village stands on a hillside overlooking a streamlet extension of the River Chiltern.—*Eashing* is not shown on ordinary maps of Surrey, and the farmhouse drawn by Mr. Higgs has no special history, so far as we know. Like the hamlet to which it belongs, the building is old-fashioned and quite ordinary, but distinctly in accord with Eashing, which is within the postal district of Godalming.—The attractive ancient porched house of the Pelhams in the High Street of *Southover*, Lewes, traditionally served as a residence of Anne of Cleves, the repudiated wife of Henry VIII., but there is no evidence of this. The diapered walling of the porch greatly enhances the stylishness of the façade. The building formed part of the belongings of the once famous Priory of Lewes, founded by William de Warenne and Gundrada, his wife, about the year 1078. The tower of the present parish church is seen in Mr. Higgs's sketch. To-day only a few walls remain of this once beautiful church and group of splendid buildings, which occupied, with the adjunct of the Calvary, gardens, pigeon house, and stews for fish, a fine area of some forty acres. The drawings now reproduced were "commended" as "book illustrations" by the judges in this year's national competition. We are indebted for them to Mr. A. B. Higgs.

### THE INSTITUTE OF CHEMISTRY OF GREAT BRITAIN AND IRELAND, RUSSELL SQUARE, W.C.

In our issue of January 12 last we published a plan, detail, perspective view, and full particulars of this fine block of buildings. To-day we illustrate a portion of the front, showing the main entrance. The architect is Sir John A. Burnet, LL.D., R.S.A., F.R.I.B.A., and the general contractors are Messrs. Higgs and Hill.

### BUILDINGS AT CLERKENWELL OF THE ORDER OF ST. JOHN OF JERUSALEM.

These illustrations are described in our first article this week.

The sudden death occurred on Friday night of Mr. Fred J. Moody, builder, of Cherry Tree House, High Street, Skegness.

Mr. Alfred Broad, architect, George Street, Croydon, died on Thursday last at his residence, Angle View, Mulgrave Road, in that town, after a long illness, aged fifty-five years. The funeral took place yesterday (Tuesday) afternoon at Shirley churchyard.

During an Austrian aeroplane raid over Ravenna on Saturday a portion of the portico of the basilica of Saint Apollinare was destroyed. The interior of this famous church, erected as an Arian cathedral by Theodoric, and containing some of the finest Early Christian mosaics in Italy, was illustrated in our issue of October 11, 1907.

## Building Intelligence.

**CARFIN, MOTHERWELL.**—The extended church of Carfin, Motherwell, was opened and dedicated on the 8th inst., by the Right Rev. David Paul, D.D., LL.D., Moderator of the General Assembly. The building has been transformed from a small rectangular mission hall into a church, with nave and chancel and one transept. The main door has been removed from the end, and placed in a vestibule at the side, and a new vestry and a session-house have also been added. The number of sittings has been practically doubled, and is now nearly 400; and an open-timber roof, with trusses resting on stone corbels, has been substituted for the old plaster ceiling. The church is heated by hot-water pipes and lighted by electricity. The total cost of the work has been about £1,300.

**RICHMOND, SURREY.**—The first portion of the rebuilt Star and Garter Hotel on the brow of Richmond Hill is now occupied by sixty soldiers paralysed through gunshot wounds. Further building works are in progress which will raise the accommodation to 200 beds for wounded soldiers and sailors. The site and the old hotel have been presented to the Queen by the Auctioneers and Estate Agents Institute, and her Majesty has handed over the gift to the British Red Cross Society who are equipping and maintaining this institution. The architect for the reconstruction is Mr. Giles Gilbert Scott. Sir Frederick Treves has stated that he found the old building quite impossible to adapt to the requirements of a modern hospital, for the reasons that the basement was dark, very badly ventilated, and in other ways unsuitable. One could hardly have asked the domestic personnel to take up their quarters in the basement. Moreover, the committee would have had to put fireproof floors on five levels, and to provide balconies extending some 30 ft. from the walls. The original hotel is said to have cost £140,000, and the present hotel will cost £50,000. Mr. Giles Gilbert Scott, the architect, is generously giving his services without fee of any sort, and the builders will carry out the work at a charge of not more than 10 per cent. on the actual outlay.

**STAMFORD STREET, S.E.**—The removal of Messrs. W. H. Smith and Son's printing works from Fetter Lane to new premises in Stamford Street, Southwark, erected from designs by Mr. C. Stanley Peach, F.R.I.B.A., has just been completed. The new building faces H.M. Stationery Office (now occupied by soldiers as King George's Hospital), and occupies an island site 41,000 sq. ft. in area, with frontages to Stamford and Leckford Streets. The two hundred printing machines are installed in a one-story room with a gallery on two sides, and 25,000 sq. ft. super., chiefly top-lit. In the northern gallery are the linotype machines and compositors' plant, and in the eastern gallery the platen machines. On the second floor are rooms for compositors and readers, and the upper floors are devoted to the offices, artists' rooms, and foundry. In a southern block are four floors, utilised as paper store (in basement), packing and despatch departments, and rooms for machine and hand cutting, folding and binding. The construction is of steel, encased externally in cement. The builders were Messrs. Holliday and Greenwood, of Millbank.

The Royal Drawing Society's annual exhibition will this year be held, by permission of the Corporation of London, in the Guildhall Art Gallery in April.

The extension of Buckle harbour, which has been in progress six years, and upon which to date £134,000 has been expended, would have come to a stoppage within the next few weeks if the Treasury had not, as the outcome of eight months' negotiations with the town council, come to the rescue by accepting and offering to finance the completion of a modified scheme embracing four new basins. The Treasury letter states that the Scottish Fishery Board are satisfied that £40,000 would be sufficient to complete the works proposed. The Treasury therefore proposes to grant a further loan of £14,750.

## Correspondence.

THE NATIONAL FEDERATION AND  
PRE-WAR CONTRACTS.

*To the Editor of THE BUILDING NEWS.*

Sir,—I have read with considerable interest the account of the meeting of the National Federation of Building Trades, and particularly the speeches and resolutions on the subject of pre-war contracts.

I rejoice to see by the final resolution that the National Federation is to move, and, I trust quickly, by approaching the Government upon this very urgent and serious question. A very large number of people, not only connected with the building trade, *but in all sorts of trades and businesses*, are being seriously worried by the position in which they are placed. As the present law stands, they have to bear the whole burden (however grossly unjust) of their inability, attributable solely to the war and to no other cause, to fulfil contracts, entered into previous to the war (in a very large number of cases only a few weeks previously), while the other parties to the contract can exact the uttermost farthing to the utter ruin of a large number of their victims, while they remain comfortable, because no remedy is given by the common law, as it has been interpreted by eminent judges in the past, who had never in contemplation such a war as we are now engaged in. The condition of affairs created by this appalling calamity of our "State being at war" has, therefore, no real effective recognition in the courts.

I notice several of the speeches jumped ahead of the main object, which should be kept in the forefront of any action taken by the National Federation and Allied Associations, viz., to press the Government to pass a short Bill, giving power to the courts to consider the effect of the state of war upon any ease of pre-war contracts brought before it, and to have power to give relief and to do justice as between the parties, as the merits and details of each may in the discretion of the court require. If this Act is passed, there is no doubt whatever that rather than face the ordeal of an exposure in the Law Courts the oppressive party in a contract would be willing to come to reasonable terms, whereas under the present position (where a contractor or lesser is suffering under an oppressive pre-war contract) he is, like Dean Swift's "Man in his Shirt," against an unreasonable and greedy opponent armed to the teeth with no remedy.

The Government are making appeals that everyone is to do his utmost to assist the country and release "men, material and money" for the country's assistance in the prosecution of the war, and I know of very many cases where people are prevented from doing all they might in this direction because of the serious position in which they are placed on account of these pre-war contracts and the responsibilities in connection therewith tying them down to these affairs. There is no doubt that the Government from the very start have neglected a most urgent duty, which should have been one of their first acts (as was done in France and Germany) immediately on outbreak of war, viz., to free their citizens from the consequence of pre-war contracts that were made impossible of fulfilment by the war, so that their countries might have the full benefit of all the energies of their peoples. Our Government has, so far, shelved this and other questions, with the results that we are now having to approach and plead with the Government to do its duty, by knocking at its door, and *repeatedly knocking*, before it will act and permit justice to be done.

The question is, th. reform, not one of asking the Government to make good losses, but it is a question of giving the right of entry to a court that shall have power to deal with any and every case brought before it upon its merits.

I trust that the National Federation will act quickly in this matter and press it (on these lines) upon the attention of the Government.

There are numerous cases that can be quoted all over the country of the oppressive

state of affairs, not by any fault of the lessees or contractors, but solely on account of the war, and especially as proceeding with these contracts in most cases means competing with the Army and Government for "men, material and money." Justice and the interests of the country call for immediate remedy.—Very faithfully yours,

HOWELL J. WILLIAMS, J.P., L.C.C.

11 17, Bermondsey Street,  
London Bridge, S.E.

LEGAL INTELLIGENCE.

**ELLIOTT v. BIGGS: REMITTED ACTION.**—At the Westminster County Court, on Monday, his Honour Judge Woodfall heard the arguments in the case which had been remitted to him by the King's Bench Division on appeal to that Court. An action was originally heard by his Honour, and was brought by the executrix of the late Thomas Woodbridge Biggs, architect, to recover certain fees paid him for works of repair and decoration in a house at Chalk Pit, near Maidenhead, executed for Mr. Elliott, and was decided in plaintiff's favour. In June, 1915, an action was brought by Mr. Elliott, as building owner, against the architect's executrix, in two parts: first a claim for £43 7s. 6d., on the ground that the late Mr. Biggs negligently issued his certificate to the builder; and, secondly, it was alleged that he had recovered from a contractor a sum of 3½ guineas for the supply of additional copies of drawings and plans, and that this receipt was not disclosed to the building owner, such receipt being alleged by the owner to be of the nature of a secret commission. To the second part of the claim the special defence was successfully raised that this was of the nature of a tort, and that under the Statute 3 and 4, William IV., such claim was to be brought within a certain period of time, which had expired. On the first point the County Court Judge, following the decision in "*Chambers v. Goldthorpe*," 1901, given by the Master of the Rolls and Lords Justices Channell and Bucknill (reported in the BUILDING NEWS for March 1, 1901, page 295, Vol. LXXX.), held that in issuing his certificate to the builder the architect acted as a quasi arbitrator, and could not be sued, except for misconduct, and, therefore, non-suited the plaintiff. That action, heard on October 25, 1915, was reported in our issue of November 3 of last year, pages 516-17. An appeal was taken by the building owner, Mr. Elliott, to the King's Bench Division, on the ground that further particulars had been delivered, and was decided by Mr. Justice Coleridge and Mr. Justice Law, after a two days' hearing, who referred the action back to the County Court Judge, with directions for him to consider whether or not the further particulars which had been furnished by the appellant did or did not disclose a cause of action, and if they did, whether or not it was competent for him to try and determine that cause of action, and, if so, to try the action for negligence. No order was made as to costs. That appeal was reported in our issue of December 22, 1915, p. 713. The case accordingly now came before his Honour for consideration of these points. As on the previous occasions, Mr. C. A. Scott and Mr. B. B. Stenham appeared for the plaintiff, and Dr. C. Herbert Smith for the defendant.

In the course of his address for plaintiff Mr. Scott cited the case of "Rogers v. James," reported in Hunt's cases, in which it was held that the architect's final certificate was only binding between the building owner and the contractor, and that the architect was still liable to the building owner for negligence in supervision. Having also referred to the well-known case of "Chambers v. Goldthorpe," 1901 (reported in our issue of March 1, 1901), and to the case of "Armstrong v. Jones," he said the sole point was whether the further particulars now delivered submitted a cause of action which should be tried by his Honour if read with the first set of particulars. Both, he argued, should be read together. For the defendant Dr. Herbert Smith, relying on the above named case of "Chambers v. Goldthorpe," argued that the further particulars did not disclose a cause of action under County Court Rule 5. Mr. Scott, having replied, his Honour, in giving judgment, said he had every desire to be loyal to the instructions of the Divisional Court. The two sets of particulars must be construed together, and did not, he considered, disclose any negligence on the part of the architect which could be regarded as "negligence in supervision," either in the original particulars nor in those amended, when read together. The appeal would, therefore, be dismissed with costs, and his original judgment, non-suiting the plaintiff, stood.

**HARD TIMES IN BOND STREET.** At the quinquennial Assessment Appeal Court held at Clerkenwell Sessions House on Monday, in the case of Messrs. Adam Heaton and Co., the Assessment Committee of the City of Westminster, was heard. The applicants, an furnisher and decorators, the lessees of a shop and premises in New Bond Street, assessed in the 1915 quinquennial valuation list at £2,200 gross value and £1,854 rateable value, urged that these figures were unfair, and should be £1,450 and £1,208 respectively. The firm formerly carried on business in Baker Street, but in 1912 removed to Bond Street with the idea of increasing their turnover. The business, however, had decreased. Mr. Stanley May, F.A.I., said that he had succeeded in letting one shop only in Bond Street during the war, and that at a reduced rental. For the respondents, Mr. John Wilton Marsh, valuation surveyor to the Westminster City Council, said he considered the assessment a fair one. Mr. James Boyton (Messrs. Elliott, Son, and Boyton) stated that he thought that in ordinary times £2,500 a year would not be an outside price for the premises in question. Sir Robert Wallace, K.C., Chairman of the Court, fixed the gross value at £1,650 and the rateable value at £1,570.

IS A FRUIT STALL A "BUILDING"?—The Chiswick Urban District Council recently summoned Mr. Robert William Barter before the Acton magistrates for not depositing plans, for not giving notice to erect, and for the use of improper materials. The council were represented by their clerk, Mr. Ernest F. Collins, and the defendant by Mr. Wilfrid Firth.—Mr. Edward Willis, borough engineer, stated that the building was a light structure, supported on iron standards, fixed into a concrete floor, which supported battens, on which were laid others, and over all was placed a tarpaulin. It had a complete front of wood, with movable shutters, dividing walls on either side formed the sides, and the building was braced to one of the walls so that it should not blow down in a storm. Plans of a temporary building in a form which the council would approve had been deposited, but the work had not been proceeded with.—The defendant stated that the structure was so fragile that the whole of it could be taken down in five minutes and re-erected in a similar time. He sold fruit at the stall, and was in the habit of taking it down every Sunday and cleaning the place. The walls were there before, and all that he had added were the uprights (which were placed in sockets in the concrete) and the rafters on which the tarpaulin rested. —Mr. Collins and Mr. Firth agreed that there was no legal definition of a building. The Bench came to the conclusion that this was a building within the meaning of the Public Health Act, but agreed to state a case. The defendant would be fined £5 on one summons and 1s. each on the three others, with a daily penalty after a week of £1.

LITIGATION OVER AN ESTATE COMPETITION.—In the Chancery Division, on Thursday, Mr. C. A. Bennett moved *ex parte* in an action in which a Mr. Bailey and fifty-nine others are plaintiffs for an injunction restraining Mr. Charles William Neville and the South Coast Land and Resources Company from dealing with moneys to their credit at the Temple Bar branch of the Capital and Counties Bank. Counsel stated that the defendant Neville, who was trading in Gray's Inn Road, advertised in the daily papers on January 9, offering £12,000 in prizes to anybody who would give him the name for a new South Coast resort in which he was interested. The name selected was New Anzieson S.S.A. A sum of £100,000 was offered as the first prize, and there were five other fifty consolation prizes of freehold land held on the estate similar to those that had been offered for sale at £50 a piece. There had been sent in the name Anzieson S.S.A. and boxes received £57. At the same time Mr. Neville did not hunt the land and so the prize was forfeited, but appeared to have been worth about fifteen thousand at least. Then came another advertisement in a name of a company where there was no announcement that the prize was open to all competitors; but they were asked to send in their names by the end of the month. It was said that the prize would cost £100,000 if it was won, and that any three gentlemen could win it. They were told that the prize was open to all competitors. A counsel stated that the prize was sent out to the public and that the estate being sold was very attractive. A counsel stated that the prize was sent out to the public and that the estate being sold was very attractive. A counsel stated that the prize was sent out to the public and that the estate being sold was very attractive.

lutely derelict, and that one could not get down to the sea at all. Steps would be cut, but there was no beach, and the cliff is falling away. The scheme appeared to be this: Mr. Neville bought 185 acres, and paid £11 an acre. He cut it up into plots, and was receiving £47 5s. each acre, or, after making allowance for expenses, a profit of £35 per acre. Although the plan showed 2,775 plots, he had awarded 3,000 as consolation prizes. He did not know how many persons had been foolish enough to pay the three guineas, but at least the sixty plaintiffs had. Their case was that their money was to be devoted to the specific purpose of paying the conveyance and stamp duties, and not for the purchase price of the land, and, in the circumstances, they claimed that they were entitled to repudiate the gift, on the ground that they were induced to accept the plots by the fraudulent misrepresentation that they were going to have a £50 plot on a flourishing estate, whereas they received a valueless plot of land on a derelict estate.—Mr. Clauson, K.C., for Mr. Neville, in his address on Friday, alleged that many of the statements made to his Lordship *ex parte* were wholly and entirely inaccurate.—Eventually, the motion stood over for a week. Mr. Clauson undertaking to let plaintiffs have his evidence in reply by this (Wednesday) morning.

#### OBITUARY.

We regret to announce that Mr. Thomas de Courcy Meade, M.Inst.C.E., for over twenty years past the city surveyor of Manchester, died, in his fifty-seventh year, on Friday last at the Cottage Hospital, Buxton, following a second operation for appendicitis, from which he had suffered for a week. Mr. Meade, who resided at Westella, Buxton, was born in 1859, and commenced his engineering training at Cork, subsequently taking up a position under the surveyor of that county. In 1875 he joined the staff of the late Colonel Haywood, city engineer of London. In 1894 Mr. Meade was appointed city surveyor to the Manchester Corporation. His greatest work was the preparation of a main drainage scheme at a cost of £1,000,000. Had he lived, Manchester would have been the beneficiary of the Town Planning Act. The city surveyor entered wholeheartedly into the preparation of the scheme as it affects Manchester, and his plans had been carried through all the preparatory stages at the time of his death. The funeral took place at Buxton Cemetery on Monday.

#### PROFESSIONAL AND TRADE SOCIETIES.

**FACULTY OF SURVEYORS OF SCOTLAND.**—Mr. Alan K. Smith occupied the chair at the annual meeting of Fellows of the East District Section of the Faculty of Surveyors of Scotland, which was held in Edinburgh on Friday. The report showed a slight increase in the number of members on the roll compared with the preceding year. During the year the council had been principally occupied with work in connection with national modes of measurement for building trades. The accounts showed a balance in hand at December 31, 1915, of £238 17s. 3d. The report and accounts were adopted. Mr. Thomas Fairbairn was elected chairman, and Messrs. G. M. Mitchell and A. K. Smith were elected members of council.

**GLASGOW INSTITUTE OF ARCHITECTS.**—The quarterly meeting of the institute was held on Wednesday within the rooms, Elmbank Crescent, Glasgow. Mr. John Watson, F.R.I.B.A., President, in the chair. The secretary, Mr. C. J. Maclean, reported the proceedings of the Council with regard to the matters dealt with since the previous general meeting. It was also reported that the President had been appointed as assessor from the institute on the examining jury of the Glasgow School of Architecture, in room of Colonel J. B. Wilson, whose term of office had expired. The meeting took into consideration the regulations for contracts for building works in Scotland which were issued recently by Sir G. R. Askwith, and these were fully discussed, and explanations were given regarding certain of the articles. The proposals of the Library and Education Committee with regard to student members of the institute were brought before the meeting, and approved of. It was agreed that all Fellows and Associate members who

engage apprentices or pupils should notify the secretary, so that a register could be kept.

**"ROUND ABOUT THE ADRIATIC."**—Mr. Howard G. Leask, President, occupied the chair at a meeting of the Architectural Association of Ireland last week, when Mr. J. White delivered a lecture entitled "Round About the Adriatic." In the course of his lecture, which was illustrated by lantern slides, Mr. White described Corfu and the famous forts of the Adriatic coast. He conveyed the audience to Trieste, and showed views of the great caves of Adelsburg, extending for miles beneath the mountains. Crossing to Venice a number of picturesque views were shown, including St. Mark's. The lecturer gave details of Venetian work in various towns. In Trau, he said, were to be found the finest examples, as there they appeared not to have created works for time, but for eternity. Following the Dalmatian coastline, Spalato he referred to as associated with the Emperor Diocletian, whose palace formed the nucleus of the present city, which has a population of over 3,000. Mr. White gave an account of Ragusa, one of the great harbours of the Adriatic, and described that great triumph in engineering, the zigzag mountain road from Cattaro to Montenegro.

**SOCIETY OF ENGINEERS.**—At the annual meeting of the Incorporated Society of Engineers, held on Monday in last week, the premiums awarded by the council for papers read before the society during 1915 were presented by the retiring president, Mr. Norman Scorgie, as follows:—The President's Gold Medal to Mr. Arthur H. Barker, B.A., B.Sc., for his paper on "Future Developments in Heating and Ventilation"; the Bessemer Premium, value £5 5s., to Mr. Alphonse Steiger for his paper on "The Modern Development of Water Power"; a Society's Premium, value £3 3s., to Mr. Sydney G. Turner, A.M.Inst.C.E., barrister-at-law, for his paper, entitled "Law and Engineering—Some Points of Contact"; a Society's Premium, value £2 2s., to Mr. Frank Grove for his paper on "Main Roads—Past and Present." Mr. Percy Griffith, the incoming president for 1916-17, then delivered his presidential address.

**ULSTER SOCIETY OF ARCHITECTS.**—The annual meeting of the members, associates, and students of this society was held at the society's rooms, 9, Howard Street, Belfast, on Thursday afternoon, the 3rd inst., at 3.50 p.m. The chair was occupied by the president (Mr. N. Fitzsimons), and amongst those present were Messrs. R. M. Young, W. J. Gilliland, H. Seaver, G. Sands, W. C. Maxwell, A. B. Dobson, and T. W. Henry, hon. secretary. The minutes of the previous general meeting having been read, confirmed, and signed, the hon. secretary submitted the annual report of the council, which was adopted on the motion of the president, seconded by Mr. R. M. Young.—The hon. treasurer, Mr. H. Seaver, submitted the financial statement, which showed the society to be in a very sound condition.—Mr. Gilliland moved, and Mr. Sands seconded, a resolution that the operation of paragraph 1, section V., of the by-laws be suspended temporarily, the effect of this resolution, which was passed unanimously, being that the council of 1915 remain in office during 1916 without re-election to deal with various matters which are in abeyance affecting the society.—Resolved that a letter of sympathy with Mr. P. M. Jury, on the death of his brother, Mr. Walter Jury, be sent on behalf of the society.—The attention of the members was again drawn to the practice prevalent in Ulster of surveyors and assistant surveyors to county and district councils engaging in private practice against the interests of the ratepayers, and resulting in grave injustice to private practitioners. The council was authorised to take any steps they considered necessary in specific cases in the interests of the profession.

A new vicarage for Cobourg Road, Camberwell, for St. Mark's Parish, has just been opened. Mr. C. R. Price, of Bishopsgate, E.C., was the builder, and the architects were Messrs. Creed and Heal, of Verulam Buildings, Gray's Inn.

#### COMPETITIONS.

**DUBLIN.**—The National University of Ireland invite competitive designs for the new University in Dublin. An excellent site has been secured at the junction of Upper Mount Street and Lower Fitzwilliam Street, at the corner of Merrion Square. The University will be a non-residential one, and the contemplated outlay is £19,000. Mr. C. J. MacCarthy, city architect of Dublin, has been appointed assessor. The designs must be delivered by June 15, and no extension of time will be granted. It is not expected that any of the building can be erected until after the conclusion of the war. Under the Irish Universities Act Settlement of 1913, £40,000 was set apart for the National University. A portion of this has been expended in the purchase of the site, and the residue will be available for fittings and furniture, etc.

#### STATUES AND MEMORIALS.

**CANON BARNETT MEMORIAL.**—At Westminster Abbey on Thursday in last week the Dean (Bishop Kyle) unveiled the mural tablet erected in the south aisle to the memory of the late Canon S. A. Barnett. The tablet is of white marble on a green base of the same material. To the left of the inscription is a figure in relief of a husbandman sowing seed. Sir George Frampton, R.A., was the sculptor.

**NIGHTINGALE MEMORIAL.**—The memorial to Florence Nightingale erected in the crypt of St. Paul's was unveiled by the Queen on Monday. It consists of a marble plaque of sculpture in low relief, depicting the "Lady of the Lamp," in half-length and wearing the familiar cap, holding a cup of water to a wounded soldier whose head rests on her arm. It is enclosed in an alabaster frame. It is the work of Mr. A. G. Walker, the sculptor of the statue in Waterloo Place, unveiled a year ago. The simple plaque is most appropriately placed on the wall of the passage between the Nelson and the Wellington tombs, and near the graves of Wolsey and Roberts.

#### TRADE MOVEMENTS.

**THE BUILDING TRADE DEMARCATION SCHEME.**—The four employers' associations involved in the national demarcation scheme for the building trade have signed an agreement, and eighteen workmen's unions out of twenty-two have definitely approved the rules.

#### TRADE NOTES.

Boyle's latest patent "Air-Pump" ventilators have been adopted for the new cinema at Tidworth.

A leaking balcony leads to many complaints. To avoid this possibility the balconies at the New Chelsea Hospital for Women have been constructed with Portland cement concrete.

We are informed that Ironite has been specified by the Admiralty for use on a large reservoir at the Royal Naval Cordite Factory, Wareham, Dorset.

Messrs. R. Gay and Co., Limited, paint and enamel manufacturers, who have for many years supplied their manufactures to H.M. Office of Works for the painting of the Royal palaces and all the Government offices, have been granted the Royal warrant by appointment to his Majesty the King.

The Great Central Railway Company possesses its own bakery, at which the whole of the bread and pastry used in its hotels and refreshment rooms is made; and a model laundry has also been established, dealing solely with the linen, at which upwards of 1,000,000 articles are washed annually.

The work of building 600 houses at Stoke Heath, Coventry, has been begun, and is to be completed by midsummer. The houses will form fourteen streets, and each will have a garden.

Mr. B. F. Chesterfield, assistant surveyor to the urban district council of Alton, Hants, has been killed in action in Persia. He did not long survive his younger brother, Mr. L. Chesterfield, drowned while on active service.

The Angell Estate in Camberwell and Stockwell, belonging to Lady Knightley, and consisting of some 44 acres of land covered by 750 shops and other property, and producing ground rents of £2,285 per annum, with reversions commencing in 1937 to estimated rack rents of £29,000 a year, will be offered for sale by auction in the spring, at the Estate Rooms, Haverly Square, by Messrs. Knight, Frank, and Rutley.



## CHIPS.

The death is announced of Mr. Harry Edwin Rider, M.S.A., of International Buildings, Kingsway, and of Hendon. He was elected a member of the Society of Architects five years ago.

A branch bank is to be erected for the Capital and Counties Bank at Amesbury, from plans by Mr. E. Brantwood Sharp. Messrs. Musselwhite and Son have taken the contract at £1,345.

A county tuberculosis hospital has been built on the Leitrim Road, Carrick-on-Shannon, from plans by Mr. J. V. Brennan, of Belfast. Mr. Bernard McDermott, of Carrick-on-Shannon, was the builder.

At Tat Bank, in the parish of Oldbury, the mission church is being replaced by a new one, having accommodation for 200 persons. The cost will be £1,900, and the architect is Mr. S. N. Cooke, F.R.I.B.A., of Colmore Row, Birmingham.

A five-floor building in Rivington Street, Shoreditch, occupied by Messrs. W. R. King, upholsterers and cabinetmakers, was destroyed by fire on Friday night. The damage and loss exceeded £8,000.

Mr. E. Prioleau Warren, F.S.A., F.R.I.B.A., left London for Corfu on Monday with an advance party of the staff for the British Hospital to be established in that island by the Serbian Relief Fund. Mr. Warren will act as administrator of the hospital.

Lichfield City Council adopted on Wednesday night a recommendation of the Finance Committee that the salary of the surveyor (Mr. P. A. Benn) be increased from £200 to £225 per annum as from January 1 last, and from £225 to £250 from January 1 next.

On the question of the reconstruction of the Norfolk Suspension Bridge spanning the River Adur at East Lancing, the West Sussex County Council have decided that a further report be obtained at a cost not exceeding £200, and that Mr. Basil Mott, of Caxton Street, Westminster, be asked to name a fee for such report.

The Bridgend Licensing Justices have granted a provisional license for a proposed hydropathic hotel at Lock's Common, Porthcawl, to be built from plans by Mr. Sydney Williams, architect, Cardiff. The accommodation will include Turkish and plunge baths, palm courts, library and reading rooms, restaurant, reception room, ballroom, and 110 bedrooms, and the estimated outlay is £50,000.

Ashludie Sanatorium, Monifieth, was formally opened on Wednesday. The sanatorium, which is part of Dundee Town Council's scheme for the treatment of tuberculosis, has cost £24,000, and affords accommodation for 64 incipient cases of the disease. Mr. J. Wilson, architect to the Local Government Board for Scotland, congratulated Dundee upon the completeness and excellence of the institution.

Messrs. Kerner-Greenwood and Co., the proprietors of Pudlo, the material that makes cement waterproof, send us a chart made by the Japanese Imperial Government showing the waterproofing value of various products. The result is to demonstrate the economy and safety of Pudlo, inasmuch as cement made with this material is capable of carrying two or three times its bulk in sand. Messrs. Kerner-Greenwood and Co. will send a copy of the chart to all writing to Ann's Square, King's Lynn.

Mr. T. O. Foster, F.R.I.B.A., who has been appointed consulting architect to the Government of Burma, in succession to the late Mr. Seton Morris, arrived in Rangoon on January 14 and took over his duties from Mr. E. J. Pullar, who has been officiating. The new consulting architect joined the Government of India nearly three years ago at Simla, where he has since been engaged on different works and on the new Delhi. Previous to that he was in practice in Westminster for seven years.

At the last meeting of the London County Council the Education Committee reported that certain of their members had conferred with Mr. W. R. Colton, A.R.A., Mr. John Hassall, R.I., Mr. M. Spielmann, and Sir Aston Webb, R.A., representing the Professional Classes War Relief Council. These gentlemen, after visiting several schools, had recommended Devons Road School (Bow and Bromley) for their first scheme of decoration. They had submitted to the committee in outline an "Empire" scheme, illustrating life and industry in the British Dominions beyond the seas. The recommendation of the committee for the adoption of the decoration was approved.

## Our Office Table.

Up to date in all respects, Lockwood's "Builders' and Contractors' Price Book for 1916" (Crosby Lockwood and Co., 7, Stationers' Hall Court, E.C., 4s.) will be found as indispensable as ever. It is too true, of course, that even during the brief interval between going to press and publication prices have moved in the wrong direction, and will probably continue to do so. Truer still that many, comparing the prices given with those of last year, will ruefully wonder when the rise—in one case, that of zinc, already 500 per cent. above the normal—is likely to end, especially if, as is threatened, the import of building materials is to be restricted. All the more reason, therefore, is there for the careful consultation of those prevailing, for want of which in an acknowledged authority like Lockwood's, careless tendering not infrequently results in the widely differing estimates that sometimes puzzle architects, building owners, and public authorities.

The building of the new London County Hall on the south side of the river, the contract for which is in the hands of Messrs. Holland and Hannen and Cubitts, was suspended by the County Council on Monday, all the workmen being withdrawn. It is understood that this step has been taken at the instance of the Ministry of Munitions, which desires to have the workmen released for the construction of munition factories in various parts of the country.

## TO ARMS!

## 4TH BATTALION

CENTRAL LONDON VOLUNTEER REGIMENT. ORDERS FOR THE WEEK ENDING FEBRUARY 19, BY SUB-COMMANDANT C. STANLEY PEACH (ACTING COMMANDANT).

OFFICER FOR THE WEEK.—Platoon Commander R. W. Corbett.

NEXT FOR DUTY.—Platoon Commander L. C. Hughes Hallett.

The Honorary Secretary, Mr. Edw. Greenop, is granted the rank of Platoon Commander as from January 29.

GENERAL PARADE.—Saturday, 26th inst., at Chester House, 2.45 p.m., for drill in Battersea Park.

SCHOOL OF ARMS.—Tuesdays, 6 to 7 p.m.

LECTURES.—Thursday, 17th inst., at Chester House, 5.45 to 6.45 p.m., by Company Commander E. J. Castell.

DRILLS AND PARADES.—For details of all drills and parades, see Notice Board at Headquarters.

ENTRENCHING PARADE.—Sunday next, 20th inst., Victoria Station (L.B. and S.C. Railway), indicator board, at 8.35 a.m. sharp, for special train, 8.50 a.m. Also at Cannon Street (bookstall), 9.15 a.m., for train at 9.39 a.m. Uniform, haversacks, and water bottles. Midday rations to be carried. Return to town about 6.15 p.m. Railway vouchers will be provided.

UNIFORM.—Particulars regarding uniform and accessories may be obtained from the Quartermaster at headquarters, where samples may be seen.

By Order, MACLEOD YEARSLEY, Adjutant.

CORRESPONDENCE.—All correspondence should be addressed to the Orderly Room.

DRILL HEADQUARTERS AND ORDERLY ROOM.—Chester House, Euston Place, S.W. February 16, 1916.

## MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY (To-day). Royal Society of Arts. "Women's Work During and After the War," by the Hon. Lady Parsons, 5.30 p.m.

"St. Paul's Ecclesiological Society." "The Choir of Lincoln Cathedral," by G. J. B. Fox, St. Paul's Chapter House, E.C., 8 p.m.

Oxford Architectural Society. "Astronomy in Architecture," by Reginald Blomfield, R.A., Ashmolean Museum.

SATURDAY (Feb. 19). Clerks of Works' Association. Annual Dinner at King's Hall, Holborn Restaurant, 6 p.m.

MONDAY (Feb. 21). Royal Society of Arts. "Flemish Architecture," Fothergill Lecture No. 111, by Dr. Herbert West, D.D., A.R.I.B.A., 4.30 p.m.

WEDNESDAY (Feb. 23). Royal Society of Arts. "Septuaginta as Seen by a Ped Cross Worker," by Miss H. B. Hanson, M.D., B.Sc., 5.30 p.m.

FRIDAY (Feb. 25). Glasgow Architectural Crafts-men's Society. "Descriptive and Practical Geometry," by James S. Boyd, Lic.R.I.B.A., 7.45 p.m.

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Eppingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

\* Drawings of selected competition designs important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc.—we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

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Advertisements for the current week must reach the office not later than 3 p.m. on Tuesday. Front-page advertisements and alterations or stop orders for serial advertisements must reach the office by first post on Monday to secure attention.

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# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

Effingham House,

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### OUR ILLUSTRATIONS

"Ancient and Modern" Memorials of Our Glorious Heroes, An Impression suggested by Exeter Cathedral. By Mr. G. Wortley Clifton  
Longstone Hall, Cambridgeshire. North Entrance Front, and West Drawing-room Windows. Messrs. J. W. Simpson, F.R.I.B.A., and Maxwell Ayrton, A.R.I.B.A., Architects.  
Old Furniture from the Sydney Collection.  
Chapel, Hightield School, Liphook. Mr. Gerald Cogswell, A.R.I.B.A., Architect.  
Chapel in Notre Dame, Mantes, Travelling Student-ship Drawings by Mr. Altek G. Horsnell.

### FLOORS IN FACTORY CONSTRUCTION.

When the main lines of new factory premises have been laid down, and the general system of construction, walls, girders, etc., have been decided on, an important point is the question of flooring. Where the building is not required to be fireproof this is a very simple matter, no more elementary system of joisting being employed in actual building enterprise than is found in even modern factories. To lay wood joists direct upon steel girders is common practice. There was a time when we lifted 4 in. by 3 in. plates to flanges as some effort at preparing a base of operations, but fir joists direct upon steel flange is accepted as good, or passes, and with the addition of sufficient herring-bone strutting renders the floor complete. To carry the scheduled working loads, which is the superimposed load plus the live, warehouse and factory fir joists require to be heavy. The superimposed load for warehouse-type buildings is 224 lb. per superficial foot; for factories, 1½ cwt. is allowable. To these loads, then, we add the weight of the construction, in the case of floors, the girders, joists and boarding, or the concrete slabs, special fireproofing blocks, and steel-work, as the case may be. Where no special demand exists for fireproof construction, the fir joists, strutted and bearing upon wall-plates exteriorly, and upon steel joists interiorly, is the most economical in first cost; but the demand for fireproofing makes the present subject of more interest and scope than if we simply dealt with ordinary wooden floors.

Whether a building is warehouse or factory type is a matter for final decision by the authorities. A factory is a works, a place of manufacture, and should in all fairness be qualified for the lighter of the superimposed loads; but in the process of manufacture we often pile up either goods before or after the special works treatment, or we may pile up on floors both the raw material and the manufactured articles. It follows that such a building is virtually a "warehouse," i.e., a store of material or goods, concentrating heavy loads. For this reason, unless some special excuse exists for claiming the factory-type allowance for superimposed load, we may do well at once to arrange for 2½ cwt., and adding the weight of construction, arrive at the strength requisite for girders, joists and floor-slabs, etc.

The simplest and cheapest warehouse or factory ground floor is a layer of concrete on consolidated ground, preferably having well-rammed dry hard-core, and for upper floors, fir joists left as from the saw, the arrises of timbers, however, being shot for convenience, in part, for carpenter's handling. Nowadays we do not use fir girders,

so such upper floorings will consistently be borne up by rolled steel joists, either simple or compound, according to span and duty—total load to be carried. So much being prepared, we should complete with a stout grooved-and-tongued yellow deal flooring, giving a generous allowance of herring-bone strutting, which, for heavy loads, is a most efficacious reinforcement to wooden floors. If calculations are entered into as to the most suitable scant-

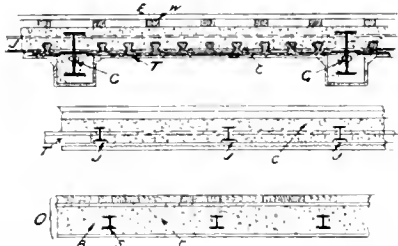


FIG. 1.—J, steel joists; T, special fire-resisting tiles dovetailed for plaster; F, floor; W, filler; G, main beams with angles to carry joists; O, A simpler system; B, main beams; S, subordinate ditto; C, concrete.

lings for duty, a generous view should be taken, a high factor of safety allowed above breaking strain where timber in cross-strain is concerned.

If we pass on from such flooring by a stage, allowing the luxury of wrought-iron faces to the joists, we enter upon the domain of either ordinary steel construction or reinforced concrete, or we may combine the two, as by employing floors

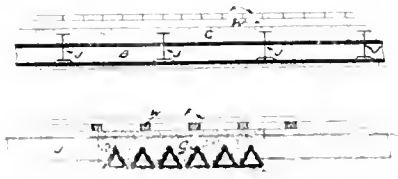


FIG. 2.—J, steel joists; B, fireclay hollow brick; C, concrete; F, floor; W, filler.

that are to all intents and purposes examples of true reinforced work. The basis from which we commence to evolve the idea of a fireproof floor is the floor slab, and in the most elementary type such slab is reinforced with steel lattice, mesh, or expanded metal, the whole supported by walls and girders, or cross-joists, comprising the floor complete. But it has been long since shown that for efficient fire protection great caution is required in using plain cement concrete, and it has followed that a great field has been opened for special systems, developed by specialists' ingenuity and experience.

The main guidance in the preparation of designs is the by-law as drawn up by authorities for fire-protection, and generally this sets out that a certain minimum thickness of protective medium must be placed over steel and ironwork. But an important point, not strictly governed by law, is the nature of the matrix in concrete mixtures employed in fireproof floorings. Ordinary Thames ballast we know to be about as bad as it can be in the way of resisting fire, coupled with deluges of water from fire-engines. Burned brick no doubt stands at a very high level, well justified by the many tests that have been made, officially and by private firms.

Where no great urgency is evidenced, we may very simply provide fireproof floors, so-called, perhaps, and for what they may be worth. The main elements are steel joists, steel wire or mesh, or expanded metal and concrete. We arrange main girders spanning the factory to accord with works convenience, and in harmony with the requirements for economical spanning of voids. To such disposition of steel we add subordinate or cross joists, and these, if we put a fair thickness of sound Portland cement concrete, need not be very close together; for the spans possible with scientifically-disposed rods or metal are very great. In practice we may not allow such great spans as calculation shows to be possible, but all the same for simplicity and economy and for a very efficient fire-protecting floor. Given, especially, a good fire-resisting matrix for our concrete, these steel-mesh reinforced slabs answer every requirement. Much depends on the careful arrangement of the expanded metal or rods, etc., that they are, when all is tamped together, in correct position to give the maximum tensile assistance to the compression-resisting material. Ordinarily, in a run of similar bays, the reinforcement rises from its normal position just above the lower slab surface and loops at high level over each supporting joist, and also up towards the wall margin of the slabs, when they should be housed in accurate horizontal channels. The stresses in floor slabs of concrete reinforced with steel are complicated, and the L.C.C. ferro-concrete regulations take account of this and give special rules for longitudinal and transverse slab reinforcement. A very large amount of modelling goes on with no more elaborate system for fireproofing than we have described, but inasmuch as fire-protection is at the present day of vital concern in city commercial buildings, and factories, more or less often demanded. One of the best systems of fireproof flooring is that of Messrs. Archibald Dawson and Sons, Ltd. This system (Fig. 1) obviates the use of centering, protects the under side of the steel

joists, and, when the concrete is laid, the whole floor becomes a solid mass. Such floors can be constructed to carry loads of 10 cwt. per foot super., an ordinary 6-in. floor having been tested to 44 cwt. per square foot before failure.

A system employing fireclay hollow brick is that of Messrs. Homan and Rodgers, as shown in Fig. 2. The fireclay bricks are hollow triangular, with flat soffit keyed for plaster. They rest upon

centres, as a large span would necessitate a heavier ceiling slab. One-inch bars embedded in 2-in. concrete is usually employed for the ceiling slab. The hollow space between the floor and ceiling slabs can be utilised either as ventilating ducts or for pipes, electric wires, cables, etc.

Expanded metal and wire mesh and lattice are indispensable adjuncts to economical fireproof construction. We explained in our article on "Additional

unsuitability for one-story factories, the cost in such cases of "forms," and the delay in setting sufficient to allow of working loads and conditions, are evident. In the construction of works and factories expedition is a leading point, more especially perhaps at the present time, when we live under unusually severe stress, tending to influence all to special expedition in every work and undertaking. In using ready-made ferro-concrete parts it is necessary to see that interconnections are effective—that the members are placed accurately in accurately prepared positions, and all grouted up cleanly and solidly, so that a construction as nearly homogeneous as possible may be ensured. Given care in this, the use of ready-made ferro-concrete parts in a structure otherwise of ordinary brick and iron or steel construction does not seem to present any objectionable features.

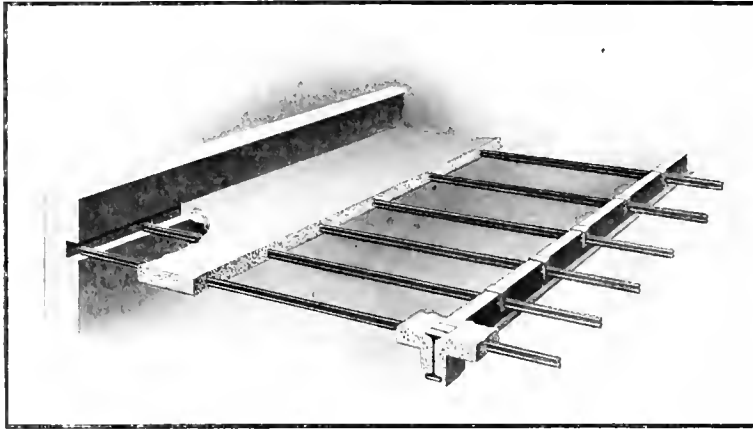


FIG. 3. Feresco Panelled Floor.

the bottom of flanges of steel joists spaced 1 ft. 6 ins. apart.

Another good floor is the "Feresco," by F. A. Norris and Co. The system combines economy, rapidity of construction, and strength. There are two types, namely, the single or panelled floor, and the double or hollow floor. In the former the concrete slab forms a flat ceiling between the main beams or girders, and the legs and soffits of the beams are encased with at least 2 in. of concrete, thus forming a panelled ceiling. This type of floor is suitable for all spans up to 21 ft., and makes a good rigid floor for even the heaviest warehouse work.

Fig. 3 gives a clear idea of this type of Feresco floor, and shows the simplicity

Floors for Factories" how the B.R.C. Fabric provides a specially effective reinforcement, particularly efficient in preventing cracks due to changes of temperature and weather. The material is manufactured by the British Reinforced Concrete Engineering Co., Limited, and will be found to meet well all requirements of architects desiring an economical means of giving tensional strength to concrete slab floors.

Another useful method is to import on to the building ready-made reinforced concrete beams. Although true reinforced concrete construction understands a solid, homogeneous mass in floors, columns, etc., i.e., as though poured liquid and thence solidifying, the ready-made concrete beam offers practical advantages, and not the

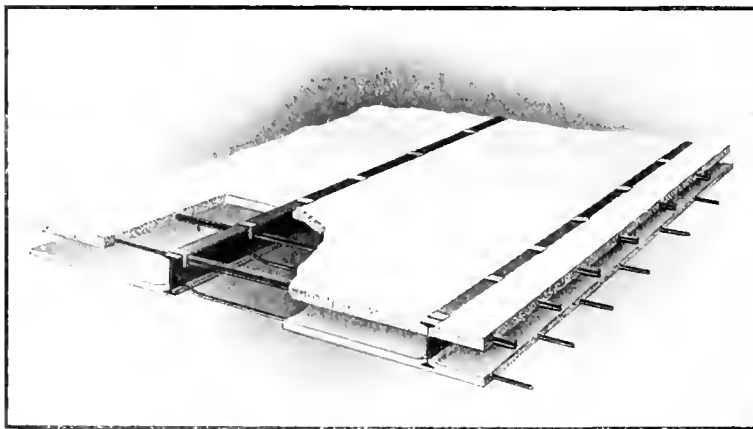


FIG. 4. Feresco Hollow Floor.

of the construction. In the double or hollow floor construction the ceiling slab is carried on the bottom flange of the girders, thus giving a perfectly flat ceiling over the whole area. This type of floor is absolutely sound proof as well as fire-proof, and is specially suitable for hotels, etc. The floors of the Ritz Hotel, Piccadilly, are mostly constructed on this system. At the *Morning Post* new building in the Strand the hollow floor was largely used to render the floors sound-proof. The usual spacing of the joists to carry this type of floor is from 7 to 8 ft.

least of these in works construction, expedition in building erection. The "Sugawart" British-made beams are duly patented, and have merely to be placed in position and grouted, no centering being required.

All the specialities named are interesting as being available for use in floorings for heavy loads in connection with ordinary steel and brick-wall building construction. Ferro-concrete pure and simple has its obvious advantages where there are many stories superimposed in warehouse or factory; but the disadvantages, such as

#### THE NATIONAL PORTRAIT SOCIETY'S EXHIBITION.

This exhibition, at the Grosvenor Gallery, will be open till the end of March, and is fairly up to the average with a total of 199 exhibits.

Miss Laura Knight has two well-executed portraits, one of herself (1) and a very satisfactory drawing of a child with lilies (177). Mr. Gerald Kelley is numerously represented by seven contributions, of which we like best "Sue in Green" (114). Mr. W. Lambert has six, one of the best being "A Blue-Coat Boy" (3). Mr. Walter Greaves may perhaps disappoint those who have not seen it before a little with his "Woman Sewing" (4); not that it is at all a bad picture—quite the contrary—but the conviction grows as one gazes that the artist's own resources would have done more justice to his subject than his apparent surrender to an influence which has not greatly advantaged him. The picture was offered as a gift but declined by the trustees of the National and Tate Galleries. Mr. Howard Somerville has one of the best portraits in the Long Gallery, the "Headmaster of Bradfield College" (49).

Mr. William Nicholson has two altogether satisfactory child portraits, "Master Pringle" (11) and "Bobbie Somerset" (13). The former is especially good. Miss Julia H. Creamer's portrait of a lady (7) is not without good points, but is patchy and somewhat messy-looking. Of Mr. Ambrose McEvoy's six subjects, his two portraits, "Mrs. Walter Russell" (18), and "Mrs. St. John Hutchinson" (20), take first rank, even if the former is more like a romantic ideal than an actual personage. Mr. William Strang, A.R.A., has eight exhibits, four of them lithographs. We like his portrait of "Miss Silvia Parsons" (15) best of the rest. Of Mr. W. B. E. Ranken's five contributions, the best is his "Garden Portrait" (30), possibly because the incident was a pleasant one to artist and subject, for we learn little more about it.

There are three portraits by Mr. Augustus John, the president, the best being that of "Captain Pringle" (27). "Madame Réjane" (25) and "The Lady with the Mantilla" (26) are both good, but hardly the best Mr. John is capable of. Mr. W. Dacres Adams has really done something few painters of Lord Mayors are able to manage, with his portrait of "Sir David Barnett, Bart., Lord Mayor of London, 1912-13" (81), which is one of the most successful pictures of its kind we remember.

Mr. W. Rothenstein has six good pencil portrait drawings, his own portrait (164) being the best, and that of "The Rev.

Stopford Brooke" (162) next thereto. Mr. T. Austen Brown is successful with his portrait of "John M. Davidson" (84), but much more so with "Summer Time" (93), which is really a very pleasant picture.

Of sculpture there is little. There are two bronzes by Mr. Jacob Epstein in the Long Gallery, "Head of an Old Woman" (39) and "Miss Lilian Shelley" (37), and Lady Howard de Walden lends his bronze of her daughter.

## OIL TRANSFER PRINTS AT THE CAMERA CLUB.

An interesting exhibition of oil transfer prints, by J. H. Anderson, is on view at the Camera Club, 17, John Street, Adelphi, W.C., and will remain open between the hours of 11 a.m. and 5 p.m. until March 11. An oil transfer is made by transferring the ink of wet oil print to a sheet of drawing-paper by contact in an engraver's press. The oil print itself is obtained by exposing, behind a negative, a sheet of gelatinised paper, sensitised with potassium bichromate and dried. The exposed print, when washed and soaked, affords a gelatine image in very slight relief. This, when dabbed with a brush charged with greasy ink, accepts the ink more or less according to the scale of tones, absorbing most in the shadows, where the gelatine is shrunk, and least in the high lights, which are swollen with moisture. The transfer produces a permanent print, free from any unstable element.

Mr. Anderson shows on the walls of the principal room at the Camera Club between fifty and sixty prints, all having the effect of very slight mezzotints, soft, and sometimes impressionist in effect. Indeed, the freedom from the harsh definition of details characteristic of many photographic reproductions is remarkable. The points of view are so well chosen and the qualities of light and shade so differentiated that almost every enlargement is a pictorial triumph. Mr. Anderson evidently has a great love for the open sea, and admires the lines of Dutch and English fishing smacks. About a fourth of the total number of pictures shown delineate some aspect of the ocean, ranging from the storm-tossed waves of No. 40 and 52 to the pellucid calm of No. 4. Others illustrate fishing luggers, afloat or at anchor, as in Nos. 16, 19, 38, 46, and 50. "A Windmill" on a canal bank, apparently in Holland, is the picturesque feature, seen from differing viewpoints, of Nos. 14 and 25, the former being the more attractive as a study. No. 30, "Dordrecht," is a near view of the quay and brick base of the west tower of the fourteenth-century church, so conspicuous in every distant view of the town, as seen from the Maas. In No. 9 some old houses on this quay are seen from the river bank, and No. 23 is a view "on Katwyk Beach." No. 12, "A Bit of Old Rouen," shows us some half-timbered houses in a paved courtyard, a peasant woman with white bonnet and ample petticoats, standing in the brighter light of the entry, giving the touch of life and colour needed to emphasise the quietude of the cul de sac. No. 33, "Rouen," shows the projecting portal of the north transept, looking west, and No. 42, having the same title, is the familiar Grosse Horloge gateway. The harbour and herring boats at Honfleur figure in Nos. 17 and 20. No. 13, "Bank-side," and Nos. 26 and 39, "The Pool," show the shipping and quays on the Lower Thames. In No. 21, "St. Paul's, from Hungerford Bridge," an archway and piers of Rennie's masterpiece form a support for the tholobate and drum of the cathedral dome, flanked by the Embank-

ment buildings and warehouses to left and right; in the foreground is the river. A second transfer of the same scene, No. 32, with coal barges drifting along the stream between our viewpoint and the bridge, has seemingly been suggested by a well-known picture by C. W. Wyllie, and is less successful. Some sheer hulks and figure heads staring over Grosvenor Road from "Castle's Wharf" make a pathetic group in No. 28, and of equally melancholy character are the "Poplars," on the margin of the Lea, in No. 34. We might go on particularising choice bits, but enough has been said to indicate the variety of Mr. Anderson's subjects, and the delightful manner in which the characteristic features have been selected and portrayed in this attractive little exhibition.

## COHESION IN EARTH: THE NEED FOR COMPREHENSIVE EXPERIMENTATION TO DETERMINE THE COEFFICIENTS OF COHESION.\*

By WILLIAM CAIN, M.Am.Soc.C.E.

(Concluded from page 130, Feb. 2.)

It may be said that it is still an open question whether friction and cohesion, according to Laws (1) and (2), are both exerted at the same time, but the limited number of experiments which have been made seem to justify the assumptions and to verify approximately Equation (2). It seems probable, however, for very compressible substances, such as fresh earth, especially if pulverised or in lumps, that the coefficient of cohesion should increase with the normal pressure: for the area of the actual contact of the particles increases with the pressure, because such pressure squeezes the particles together and causes a more intimate contact; hence, since by Law (2), the cohesion varies directly as the area of contact, it should prove, for such earths, the greater the larger the normal pressure.

This objection applies in a much less degree to a slice of earth cut out of a bank and experimented on in its virgin state, just as it was in the bank. However, if fresh, clayey earth is taken from a new embankment, the earth being more or less pulverised, the coefficient of cohesion is doubtless small; but if such earth is thoroughly wetted and rammed, so as to approximate to a puddle wall, its cohesion is very much increased, as the contact of the particles is more intimate than when the earth was in a friable state.

From similar considerations, it would appear reasonable to suppose that the unit cohesion in a bank of earth should increase with its depth, so that it is highly desirable to subject the earth, between the plaques, to pressures corresponding with those actually sustained in banks, say, up to 50 ft., or more, in height, in order to ascertain the variation, if any, in the coefficient of cohesion. If this variation with the height is appreciable, then an average value of the coefficient, for a particular height of bank, would have to be assumed for the imaginary homogeneous earth to which the theory pertaining to coherent earth strictly applies.

It may be remarked, further, that Equations (1) and (2) are only valid when no relative motion of the plaques occurs. When motion once occurs, it would seem that the cohesion of the earth along AB would be destroyed, and that only friction is exerted. This is analogous to the case of the trench, in which constructors are very solicitous about placing the bracing before a break in the earth starts, for in such case the cohesion along the surface of the earth is lost, only friction remaining, so that the pressure on the bracing is very much increased. If this reasoning is true, is not the "friction of motion" between any two bodies (wood, iron, stone, etc.), more nearly the true friction than the "friction at rest"? It is possible that cohesion as well as friction may be exerted between any two bodies at rest, so that expressions of the form of Equation (1) should be written to correspond to the results of experiments made as previously indicated.

\* A paper presented on February 2 at a meeting of the American Society of Civil Engineers.

The solution of such equations is to determine  $f$ , and also  $k$ , if it is not zero, as usually assumed.

The results of the experiments made to determine the coefficients  $f$  and  $k$ , as given  $k$ , after a method equivalent in principle to that just outlined, will now be given.

In the experiments of Leygue, the normal pressures were very small—only from 7 to 40 lb. per sq. ft., but the laws of Coulomb were practically verified within these narrow limits. The results were:—

			lb. per sq. ft.
Dry sand.....	$f = 0.70 \phi$	$k = 35$	1.47
Wet sand.....	$f = 0.85 \phi$	$k = 40$	2.28
Very wet sand ..	$f = 1.70 \phi$	$k = 55$	3.36
Damp fresh earth	$f = 1.63 \phi$	$k = 58$	28.45

Leygue states that Collin found, by an independent method, that for clayey earth,  $k = 23.1$ ; and that for clay of little consistency  $k = 39.5$  lb. per sq. ft.

From the small value for cohesion for dry sand (only 1.47 lb. per sq. ft.), Leygue seemed to be warranted in ignoring it in analysing the results of his carefully conducted experiments on retaining walls and boards. As the results did not agree very well with those of the sliding-wedge theory, ignoring cohesion, the writer reviewed the subject of experimental walls in an extended paper,† reaching the following results.

For walls of a few feet in height, backed by dry sand, the ordinary sliding-wedge theory, ignoring cohesion, agreed in its results fairly well with those of experiments, provided the friction between the earth and wall was included from the start; but the Rankine theory was not sustained generally by the experiments. In Leygue's experiments, however, the walls or boards were only a few inches in height, and it was found that the influence of cohesion was marked and that the results could only be harmonised with theory by including the influence of cohesion as well as that of friction. The cohesion required was very small—only about 1 lb. per sq. ft., which is a little less than that found by direct experiment—but its influence on the results was marked, owing to the small height and consequent small weight of the prism or wedge of rupture. In the course of the investigation, a complete graphical method was devised, which can be applied in ascertaining the thrusts against retaining walls and trench bracing for the coherent earth supposed. In such applications, it is absolutely necessary to find the coefficients,  $f$  and  $k$ , by the method previously detailed. In fact, the value of  $\phi$  for consolidated earth is found to be much less than the usual so-called "angle of repose," and its low experimental value, as given in the remaining results, will doubtless give a decided shock to those not familiar with this recent experimenting.

The results of the experiments made in 1910 by MM. Jacquinet and Frontard,‡ on earth taken from an earthen reservoir dam which had failed owing to a considerable lowering of the water level, will next be given. The dam was constructed in the most approved manner, of the best materials, the composition of the earth tested being 60 per cent. clay, 32 per cent. silica, as an impalpable dust, and 8 per cent. silicious sand. Water was added to the earth, and it was then kneaded and compressed with the hands so as to make a firm though pasty cake, which was then inserted between the plaques. Not enough water was added to cause a lateral flow when the cake was under compression. The details of the apparatus used are not given. The results for the first series of experiments are given in Table I.

TABLE I.				
$P_0$ in pounds per square foot.	$\phi$	$\tan \phi$	$f$ in pounds per square foot.	$k$ in pounds per square foot.
692	0.01	0.01	0.01	0.01
2,980	0.14	0.14	0.14	0.14
5,665	0.14	0.14	0.14	0.14
7,154	0.14	0.14	0.14	0.14

† "Nouvelle Revue de Géométrie," p. 100.   
‡ "Annales des Ponts et Chaussées," Part II, p. 75.

§ "Experiments on Retaining Walls and Pressures on Tunnels," by Mr. A. S. C. E., vol. LXV, 1911, p. 40.

Given in some detail by Professor Boudin in his work "Poussée des Terres," Part II, "Théorie des Terres Cohérentes," p. 327, Paris, 1910.

The earth in the bank weighed 112 lb. per cubic ft., so that the recorded pressures corresponded to the vertical pressures experienced at depths of from 6 to 64 ft. for the earth in question.

After the first series of experiments had been performed, the manometers got out of order, so that a correction had to be applied, and, as there was some doubt as to the accuracy of the results, they will not be given. From all the experiments, however, some referring to the earth as it was taken out of the bank, and some to rammed earth, the quantity of water being varied, it seemed that the following conclusions, as stated essentially by Résal, could fairly be drawn:

(1) Coulomb's laws were approximately verified.

(2)  $f = \tan. \phi$  ranged only from 0.14 for a soft, pasty earth to 0.18 for the earth nearly dry. Neither the quantity of water used, nor the ramming or puddling, caused much variation in  $f$ .

(3) On the other hand, the quantity of water used affected the cohesion very much, and sufficient ramming could more than double the coefficient of cohesion.

The large values of  $k$  were to be anticipated, as the theory of open cuts and trenches would lead one to expect, for ordinary consolidated earth, values of  $k$  running into several hundred pounds, but the low values of  $\phi$  (only from 8 to 10°) are somewhat startling, and indicate that our ideas with respect to the coefficient  $f$ , and earth-pressure theory generally, may have to be considerably revised.

The values of  $k$  and  $\phi$ , given in Table II., lead to the same conclusions. They represent the results of experiments on clay, in its virgin state, as taken at various depths from an excavation carried below low water, in the course of sinking a large number of monoliths which are to form the foundation of the outer sea-wall of a dockyard at Rosyth.\*

The figures given represent fair average values for  $k$  and  $\phi$ .

TABLE II.

	$k$ , in tons per square foot.	$\phi$ , in degrees.
Very soft puddle clay ....	0.2	0
Soft puddle clay.....	0.3	3
Moderately firm clay ....	0.5	5
Stiff clay .....	0.7	7
Very stiff boulder clay....	1.6	16

By the term, "puddle clay," is meant a pure, homogeneous, plastic clay, free from sand or stones. As to the time element, it is stated that all the tests were of considerable duration.

In the discussion of the paper, Dr. Unwin called attention to the important fact that Collin, in 1846, found that the resistance to shear in clay produced in 12 or 15 min. was only one-third or one-fourth of that produced in 12 to 15 sec. Mr. Bell stated that experiments were made also on perfectly dry sand, for which it was found that practically  $k = 0$ , and that the results were in agreement with the equation,  $q = f p = \tan. \phi p$ , where in this case,  $\phi$  was the "angle of repose," provided the sand was rammed in the cylinder of the testing apparatus; but if it was merely poured in and shaken, then it was found that the angle  $\phi$  of the equation was much less than the angle of repose.

Enough has been given to show the absolute need of a series of comprehensive tests to determine the coefficients  $f$  and  $k$  for every class of material. It is highly desirable, too, to have a permanent testing laboratory, with an apparatus capable of subjecting the earth to pressures varying from 0 to at least 10 tons per sq. ft., to which earth could be sent from any locality to have its coefficients  $f$  and  $k$  ascertained.

In designing the apparatus for testing the earth, it will be unfortunate if certain objectionable features of some previous designs are repeated. Thus, in Legue's peculiar apparatus a certain portion of the weight of earth and load was held up by the vertical sides of the box by friction, for which allowance had to be made. No error from this

cause attaches to the very simple design shown in Fig. 1, where there is only contact of earth on earth and no contact of metal on metal. Likewise, in testing, although the effect of ramming and puddling should not be neglected, it seems reasonable to suppose that the most correct determinations of  $f$  and  $k$  could be obtained from the earth cut out of the bank or in its virgin state, especially when subjected to the pressure it bore in the bank. Then, too, careful experiments should be made to determine the effect of the time element, particularly for a substance like clay.

It seems needless to point out the practical importance of such experimenting, for it has long been recognised that, although certain theories of earth pressure give fairly correct results when the filling consists of a strictly granular material, such as sand, gravel, or rip-rap, yet when such filling consists of ordinary earth, endowed with cohesion, it is found that the theory is inadequate, or, strictly speaking, that it is inapplicable, and that the theory for coherent earth must be applied.

Take, for example, the earth in the embankment or reservoir dam which failed, as previously cited. Possibly the fresh earth had a natural slope of 1 on 1½ before it was rolled, etc., and if placed behind a retaining wall the thrust would have been computed (for  $\phi = 33^\circ 41'$ ) for an earth devoid of cohesion, on the supposition that the thrust thus found was in excess, and, therefore, on the side of safety.

Suppose, however, that this filling was laid in horizontal layers and wetted and rolled or tamped, so that, as already found, the "angle of friction" (not the maximum inclination of the surface possible) was only  $8^\circ$  and  $k$  was 400 lb. per sq. ft.; then, perforce, the theory of coherent earth would have to be applied in order to obtain the true thrust. For a similar illustration take the retaining walls designed by Gustav Lindenthal, M. Am. Soc. C. E., for a concrete viaduct 65 ft. high. These walls were thin and vertical, were placed on each side of the roadway, and were connected by tie-rods, the space between being filled with earth thoroughly tamped and consolidated.\* In this case the earth thrust can only be guessed at, unless the coefficients,  $f$  and  $k$ , are determined by experiment, in which case the theory of coherent earth will give the exact thrust. In fact, it is seen that Equation (1) exactly applies in finding the resistance to sliding along the plane of rupture.

Again, Mr. Bell's experiments, already cited, were made with the express purpose, not only of finding the earth thrust from the material surrounding the monoliths, but likewise the permissible pressures to which the clay under the monoliths could be subjected. The latter involved the theory of a possible heaving of the wall at the heel from the earth pressure behind it, or a possible heaving of the earth in front of the wall from the pressure of the latter at its toe. For the foundation, it was assumed, for the stiff boulder clay encountered, that  $k = 1.5$  tons per sq. ft., and  $\phi = 15$  degrees. The results would have been absurd if  $k$  had been assumed equal to zero, as in the ordinary theory. In fact, this ordinary theory (for  $k = 0$ ) is rarely ever applicable to foundations, which almost invariably are in consolidated earth or clay having a high coefficient of cohesion.

In addition to the subjects previously mentioned may be cited the earth pressure on the bracing of trenches, the pressures on tunnel linings, and on piling, and the stability of slopes, none of which can be properly treated without experimental determinations of the coefficients,  $f$  and  $k$ , for the material encountered.

The theory of pressures in coherent earth is at hand—at least, for homogeneous earth—but it cannot be applied without a more extended knowledge of the coefficients  $f$  and  $k$ . In some of the recent texts, there has been a tendency to pull down existing theory. One aim of this paper is to encourage the building up of a better and more compre-

hensive theory—one which deals with coherent earth for the general case, and reduces to the ordinary theory for materials nearly devoid of cohesion, such as sand, gravel, or rip-rap. Such a general theory introduces all the vital elements which are necessary for a solution.

It is fully realised that changes may occur in the values of  $f$  and  $k$  from weathering, vibrations, freezing and thawing, rains, and chemical changes, so that a prudent engineer will anticipate and allow for such changes; but this again only emphasises the need of experiments on a particular earth covering a long period of years.

The term "angle of internal friction" has been introduced into engineering literature in recent years, causing much confusion and mental perplexity; for, since for dry sand the law  $q = f p$  practically holds, then  $f = \tan. \phi$  is the same for the interior as for the surface, and  $\phi$  is then truly the ordinary "angle of repose." For a homogeneous, coherent earth, however,  $q = f p + k$ , where  $k$  and  $f = \tan. \phi$  are constants, though now  $\phi$  no longer represents the possible maximum surface inclination, but the "angle of friction," as found from experiment, after the manner previously indicated. Thus there should be no possible confusion of terms in introducing this new (old) theory.

The subject has been brought up at this time because the society, through one of its special committees, is now engaged in a general investigation of the bearing value of soils, earth pressures, etc., and, in the writer's opinion, the most hopeful method of attack is along the lines indicated herein.

#### LONDON COUNTY COUNCIL.

At the fortnightly meeting of the London County Council yesterday (Tuesday) afternoon the Establishment Committee reported that a letter was received on the 7th inst. from the Ministry of Munitions of War, stating that the Minister of Munitions has found it necessary, in view of the great shortage of labour for the construction of munition factories, to give directions under the Defence of the Realm Acts for the immediate discontinuance of the work now in progress at the new county hall, and that he had notified the contractors, Holland and Hannen and Cubitts, Limited, accordingly. The Minister expressed regret at any inconvenience which might be caused to the Council by his action in the matter, which, the letter stated, had only been taken in view of urgent considerations of national interest. The Committee added that they were in communication with the Ministry of Munitions of War and the contractors on the matter.

The Local Government Board Committee reported that they had considered an application of W. E. Blake, Limited, contractors for the erection of the new sessions house at Newington, for interest to be paid on the prices paid by them for oak not yet taken over from their merchants for the purposes of the contract. With the concurrence of the Finance Committee, it was decided to allow the contractors, subject to conditions, such additions to the prices quoted as would be equivalent to a rate of interest calculated at the rate of 5 per cent., the allowance to include the cost of storage and all other charges. W. E. Blake, Limited, also applied for the release of a portion of the money retained by the Council under the contract. In view of the concessions already granted, the Committee informed the contractors that the Council was unable to accede to their application. The Committee had considered the question of restricting capital expenditure in connection with the erection of the new sessions house. As nothing could be done in this direction except by agreement with the contractors, they had been in communication with W. E. Blake, Limited, who had intimated that they were not anxious to slow down or to retard the progress of the contract, but that they were willing to meet the views of the Council and H.M. Treasury, provided that they were subject to no monetary loss. The contractors also drew attention to a number of factors which they stated would involve extra cost if progress were retarded. In view of all the circumstances, the Committee decided not to take any action for retarding the work, which was, however, being slowed down

\*The experiments were made under the direction of Mr. A. L. Bell, the results being published in *Minutes of Proceedings*, Inst. C. E., vol. cxcix., Session 1914-15, Part I., in a paper by Mr. Bell entitled, "The Lateral Pressure and Resistance of Clay and the Supporting Power of Clay Foundations."



to some extent owing to the general conditions now prevailing.

As to the southern outfall, the Main Drainage Committee stated differences have arisen with Boving and Co., Limited, as to the efficiency obtained from the 38-inch centrifugal pumps recently installed by the company at the southern outfall, and the matter has been submitted to Captain Riall Sankey, R.E. (ret.), M.Inst.C.E., for arbitration. Mr. John Cochrane has completed satisfactorily his contract for new sludge-loading engines and pumps at the southern outfall. The amount of his tender was £4,835, and the total cost of the work is £4,802 6s. 11d. The Committee have authorised the payment of the balance (£467 6s. 11d.) due to Mr. Cochrane. Dick, Kerr and Co., Limited, the contractors for the construction of the new engine house, culverts, etc., and the additions to the existing boiler-house at the southern outfall, have submitted a claim of £5,906 13s. 11d. for extra works in connection with their contract. A sum of £2,250 was offered to the company in full discharge of their claim, and the offer was accepted. The Committee also mentioned that the darkening of skylights at the southern outfall has been carried out by the jobbing works contractors at an estimated cost of £1,356 18s. 1d.

#### CLERKS OF WORKS' ASSOCIATION DINNER.

A numerous company assembled in the King's Hall, Holborn, on Saturday evening at the thirty-third annual dinner of the Incorporated Clerks of Works Association. The chair was occupied by Mr. Ernest Newton, A.R.A., P.R.I.B.A., who was supported by Messrs. J. Alfred Gotch, Edwin T. Hall, H. Austen Hall, Arthur Keen, and other architects, Col. A. C. Preston, and Messrs. A. F. Dorey, Alfred Fincham, Walter Lawrence, G. W. Ramplin, J. R. Scales, E. Stevens (President of the Association), etc.

The loyal toasts having been tersely given by the Chairman, Mr. G. W. Ramplin, Vice-President, proposed "The Architects and Surveyors," and in so doing suggested that the war will be followed by a much-needed revival in the architectural and building worlds, and that many of the edifices now being erected for munition work will be utilised for commercial and manufacturing purposes, and thus help in wresting trade from our present enemies. Mr. J. Alfred Gotch, J.P., F.S.A., in responding, remarked that as one practising or carrying on his business in a country town he was gratified to see retained in the toast the full title of "architect and surveyor." Two of the most distinguished architects of the seventeenth century, Inigo Jones and Sir Christopher Wren, were primarily surveyors. At the present moment his colleagues and himself felt inclined to exclaim with the Roman gladiators on entering the arena, "Those who are about to die, salute thee." Mr. Ramplin seemed optimistic in his post-war views, but his own anticipations were short and dismal. Certainly, practising architects would not echo his eulogies of buildings that would last for ever; if there was to be a vision of future employment for the profession the candid architect would in his heart hope that buildings would, owing to changes in fashion and in requirements, need to be replaced every thirty years. In conclusion he referred to the indebtedness every architect felt to his clerk of works.

Mr. A. F. Dorey proposed the toast of "The Worshipful Company of Carpenters," and expressed the deep gratitude of the Association for the hospitality shown them throughout the existence of the company.

Colonel A. C. Preston, past-Master of the company, said the court had always been pleased to place an office and examination hall freely at the disposal of the clerks of works. They were, notwithstanding the war, continuing their free lectures and maintaining their technical schools in Great Titchfield Street, where one class, that in lead burning, was being attended by from fifty to sixty students.

The toast of "The Builders and other Visitors" was proposed by Mr. J. R. Scales, and was acknowledged by Mr. Walter Lawrence, past-Master of the London Master Builders' Association.

The toast of the evening, "Success to the Incorporated Clerks of Works Association," was proposed by the Chairman, who reminded members that the Association was founded in 1882, and for five-and-twenty years was self-supporting. During that period the committee granted assistance from the subscriptions of the members to clerks of works who had been unable through sickness to follow their employment. The funds were, however, only sufficient for temporary relief. The committee, with the kind help of a few generous helpers, among whom was his esteemed friend Mr. William Woodward (who, he regretted to say, was unable to keep his promise to be there that evening, as he had just undergone a severe operation), formed a benefit and pension fund, to enable them to assist members in temporary distress, and to grant a small pension to those who, through old age, were compelled to retire from active service. There was a membership of 127, consisting of members, honorary members, and associates. Meetings were held and lectures given once a month in a room at the Carpenters' Hall, London Wall. Members were elected after careful consideration, so that all those admitted to the Association were now fully qualified to undertake the duties of a clerk of works. The war, in almost entirely stopping building operations, had hit the clerk of works very severely. He believed he was right in saying that, whatever might be the case as regarded individuals, as an Association they had not been made use of by the authorities, in whose eyes it almost seemed that organisation was a sure bar to employment. The great fall in employment meant corresponding difficulties for those out of work; savings did not last for ever; and many members must have already exhausted their economies, and he feared there were many more who were within sight of this catastrophe. It was here that the benefit fund came into play; but benefit funds, although they might have an opulent hand, could only be of service if those who were able to do so subscribed to them. Every little helped, and he hoped that none of those to whom he was appealing would be deterred from giving because they felt that they must give modestly. All connected with the great industry of building were suffering more or less, but they could each do something to help one another. When flocks and herds were overwhelmed by a snow-drift they drew close to one another for warmth, and so survived. In the same way he hoped that by holding together they might weather the present storm, and emerge, when all was over, a little battered, possibly, but each ready to take his part, each in his own sphere of activity, in carrying out all the work which they hope might have to be done in the future.

Mr. E. Stevens, the President, in replying, said that the secretary had written to the secretary of the Royal Institute, asking the Council to give audience to a deputation, who would urge the necessity for raising the remuneration of members, in view of the increase of prices. To that application they had as yet received no reply, and he trusted their chairman, who had shown them so much sympathy, would endeavour to arrange a meeting. Again, clerks of works do not come within the provisions of the Employers' Liability Act, and he appealed to architects to put into their specifications a clause covering the insurance of the clerk of works. Of the members, twenty-four were unemployed, of whom eleven were working on munitions and four were serving with the colours. The majority of the members were beyond military age.

Mr. Alfred Fincham, past president, proposed the health of the Chairman, and referred to the refinement and individuality of his executed work. The toast was received with musical honours.

In responding, the President said he remembered in his early days in what respect he held the clerk of works. He was a mysterious being, full of traditional building knowledge, recognising all the brand marks on timber, and even the natural bed of Caen stones. Naturally time had somewhat divested him of these mysterious attributes, and for one thing he had not yet seen the man who could pronounce on the bedding side of a

piece of Caen stone, but his feelings of respect remained as strong to-day as they were forty years ago. As to the proposed deputation on salaries, he had not yet heard of the suggestion, and had no authority to commit the Royal Institute to a reply. Clerks of works ought to be insured, he urged, under the Employers' Liability Act. They had at least 2,500 architects serving in the forces at the present time, and the list of those on service was not nearly complete.

## Correspondence.

SECOND LIEUT. G. HOWARD JONES, A.R.I.B.A.—MILITARY CROSS.

To the Editor of THE BUILDING NEWS.

SIR,—The above success of an architect will probably interest the architectural and building professions.

Mr. Howard Jones, who joined the Public Schools Battalion at Epsom immediately after the outbreak of war, was up to that time on the architectural staff of H.M. Office of Works, Storey's Gate, Westminster, where he had been engaged since serving his articles with Mr. Ivor Jones, A.R.I.B.A. (Ivor Jones and Percy Thomas), Cardiff.

He has been responsible on two occasions for exceedingly useful work. As Brigade Scout Officer he has discharged difficult observation duties in the front trenches, and has submitted reports and sketches of great importance. On another occasion, in company with another officer and two men, he figured in an exciting wire-cutting episode between the British and German trenches in the neighbourhood of Loos.

From the Public Schools Battalion Mr. Howard Jones was appointed a second-lieutenant to the 3rd Welsh, and after being trained with them at Cardiff and Porthcawl was drafted out to France attached to the 2nd Welsh, and was present at the German counter-attack after the battle of Loos.—Yours faithfully,

IVOR P. JONES

6 and 7, St. John's Square, Cardiff,  
February 15, 1916.

#### SIR T. G. JACKSON'S "GOTHIC ARCHITECTURE."

SIR,—In the second volume of this logically-expressed work, reviewed by you a fortnight ago, there is on page 121, vol. ii., an excellent illustration of the ornate tower of the parish church of St. Lawrence, Ipswich.

Sir Thomas Jackson does not mention that the credit for nearly all this elaborate flint and freestone panel work, so thoroughly East Anglian in character, should be given to the late Messrs. Frederick Barnes and Howard Gaye, of Ipswich. (See illustration of the restoration in THE BUILDING NEWS for December 29, 1892.)

In the generally accurately compiled index to "Gothic Architecture," it is designated "St. Leonard," Ipswich—a dedication which does not occur among the churches in that borough, and very rarely in the county.—I am, etc.,

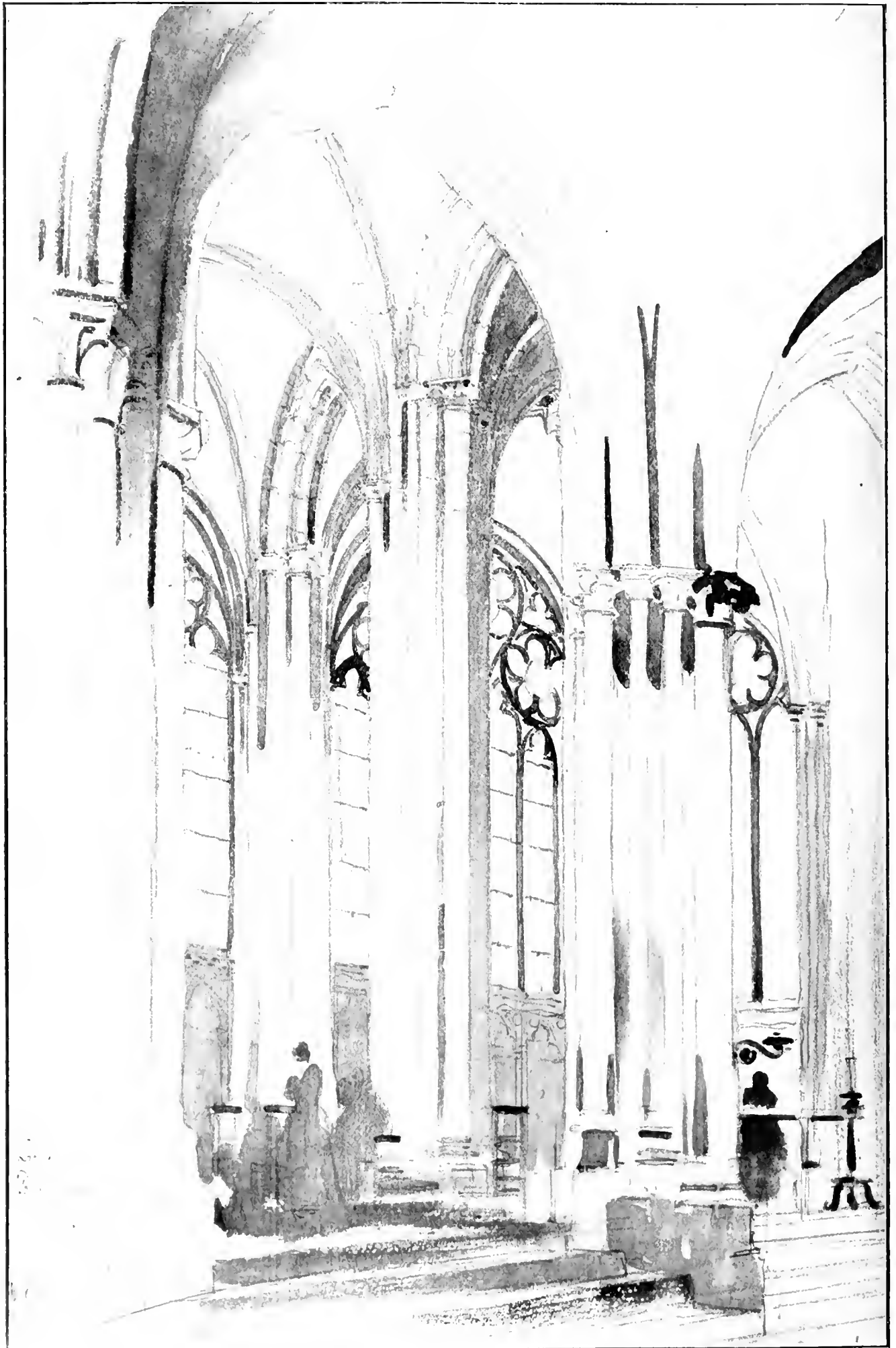
EAST ANGLIAN.

We are asked to announce that the general meetings of the Royal Institute of British Architects in future will be held at 4 p.m., instead of 3 p.m., as announced in the *Kalendar* and other publications of the Institute.

The bridges committee of the corporation of Hull have deferred the further consideration of the North Bridge scheme until six months after the termination of the war. The estimated cost of the various schemes range from £32,000 to £200,000.

The death is announced of Mr. George F. Muldell Brady, J.P., who resided at 1, St. Paul's Square, Norton Folgate. He was the head of the firm of Messrs. George F. Brady and Sons, builders, decorators, and costumers, Steward Street.

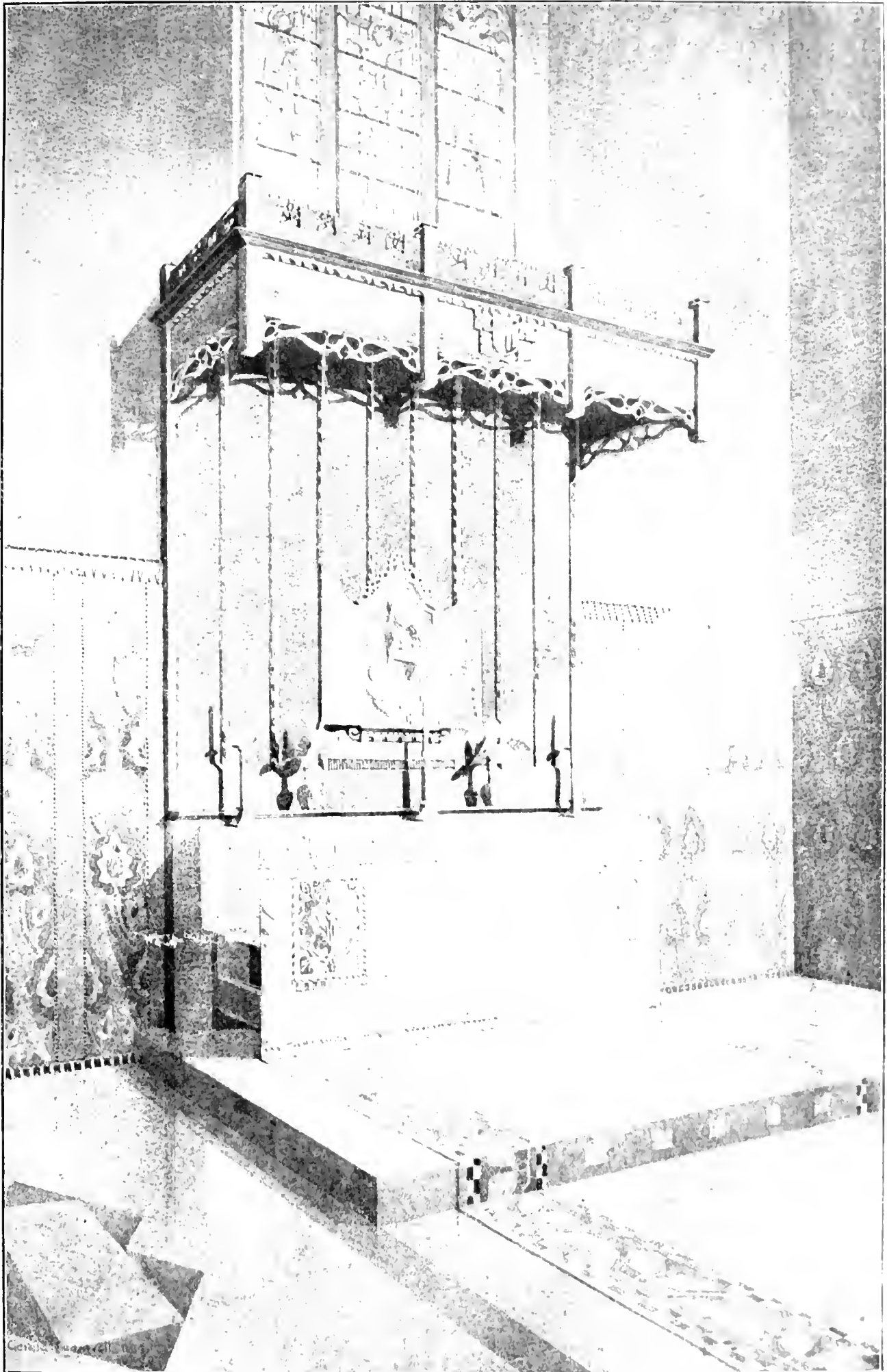
In the third report of the Committee on Retrenchments in Public Departments just issued, the abolition of the Road Board—which between 1909 and 1915 received a total revenue of about £6,500,000—is recommended, and drastic economies are suggested in the administration of the National Insurance Act.



CHAPEL IN NOTRE DAME, MANTES.

Travelling Studentship Drawing by Mr. ALICK G. HORSNELL.





CHAPEL, HIGHFIELD SCHOOL, LIPHOOK.—MR. GERALD C. SELL, A.R.I.B.A., ARCHT.

## Corrente Calamo.

The British Industries Fair in the Victoria and Albert Museum, South Kensington, was opened on Monday, and will close on March 3. In order to avoid interference with the production of munitions of war, exhibits at this year's Fair have been limited to the following trades: Printing and stationery; china, earthenware and glass; fancy goods; and toys. The toys occupy the lion's share of space and in the catalogue, but we noticed little of original design or character. There is some good glass and pottery of its sort, and the printing and stationery exhibits are well up to the average in most departments. The "fancy goods" for the most part are commonplace. One commendable endeavour in regard to toys we noticed at Stand A 47, where Mr. William Bailey, of 213-15, Brearley Street, Birmingham, shows "Wenebrik," an instructive architectural toy, consisting of metallic-grooved bricks, slates, ridge tiles, windows, doors, spouting, and everything necessary for erecting cottages, houses, churches, stations, etc., well suited to encourage the aspirations of the juvenile architect or builder, and by no means beneath the attention of either in later years, when desirous of exhibiting to his prospective client a more solid embodiment of his ideas than a drawing conveys to the average layman. The exhibit most likely to attract our own readers is Stand L 47, where Rust's Vitreous Mosaic Co., of Church Road, Battersea, display some good specimens of their excellent and inexpensive specialities, which many doubtless have used with satisfaction for walls and ceilings of banks, churches, hospitals, theatres, hotels, etc. The tiles have distinct merits of their own, as regards variety and homogeneity of colour, novelty of appearance and sizes. The material is hand cut and has a slightly matted surface, rendering it far more effective than the mechanically correct, cold-looking tile. Blue greens and peacock tints are all the same price as whites, and as every variety of colour can be obtained, the material adapts itself to decorative and artistic treatment in a manner not possible with most glazed tiles. Owing to the hardness of the material there are practically no breakages in transit. A word of well-deserved praise is due to the organisers of the Fair for the excellent arrangement of the exhibits and stands, and the complete absence of the unreadiness of most exhibitions of the kind on the opening day.

Possibly a better reception by the House of Commons would have been given last Wednesday to the petition presented by Mr. Harcourt, as First Commissioner of Works, from the trustees of the British Museum, asking for further support to enable them to execute the duties of their trust, if these duties had of late been effectively discharged. The explanation by the Archbishop of Canterbury of the easy-going fashion in which they had assented to the Treasury demand for closing the Museum, though no appreciable saving could be shown, has shaken confidence in the present administrators, and has given point to the contention of Mr. Butler, K.C., M.P., that the statute of George II. establishing the British Museum indicates a reasonable doubt as to whether the trustees of the British Museum are entitled, in the proper discharge of the duties of their trust, to make a rule completely closing for an indefinite period that institution, or the Natural History Museum in South Kensington, or the library, or any of the collections, and thereby preventing public use and free access. Though Mr. Asquith, of course, adheres to his recently defined attitude, Mr. Butler's conten-

tion is that any rule or statute which prevents the public use of the Museum or free access to it is *ultra vires*.

The ventilation of the Old Bailey seems to have dissatisfied all concerned from the first. Mr. Justice Low last week made some strong comments on the draughty condition of the court, and threatened to adjourn the proceedings. He remarked that either the atmosphere was almost stifling, or there were draughts which gave one a cold. "It is a pity that better arrangements cannot be made to accommodate the judges in the City," he added. "It is perfectly disgraceful; I shall adjourn the court until it is seen to, unless something is done about it. It is perfectly abominable. I have caught a cold through sitting here the last few days. It seems an extraordinary thing that at this time of day more reasonable provision cannot be made to ventilate a court like this." Turning to the jury, his lordship added: "I do not know how you feel about it." A Jurymen: "It is draughty, my lord." The Judge: "Yes, it is intolerable." It really seems as if a competent inquiry into the matter might be advantageous. Here is a public building in which, on scientific principles, it surely ought to be possible to ensure good ventilation by methods which have been proved successful, rather than by such as elicit such strong condemnation by all concerned. Meanwhile, architects and others concerned in the erection of similar buildings will do well to avoid similar strictures, which, in all probability, will be levelled at them for consequences they are but distantly responsible for. By the way, the old complaint about the difficulties of hearing seems at last about to receive attention. At a meeting of the City Corporation the chairman of the City Lands Committee said that the echo at the Old Bailey of which Mr. Justice Darling complained at the last sessions was being remedied.

At the first meeting of the City of Westminster Tribunal under the Military Service Act, last week, Sir E. J. Poynter, the President of the Royal Academy, applied for the exemption of Mr. W. R. H. Lamb, the secretary, and pointed out the importance of the work in which he was engaged. Alderman Walden, one of the members of the Tribunal, wanted to know if an educated woman could not do the work, and remarked "plenty of women had maticulated." Sir Edward Poynter did not think so, and pointed out in response to an inquiry by Mr. Macmillan whether no junior could be promoted to fill Mr. Lamb's post that the librarian had already gone to the front. It was stated by the military representative that Mr. Lamb had been exempted from foreign service, and the Tribunal decided to put Mr. Lamb back for three months, which would carry the Academy over the preparatory work for the May exhibition. That is a reasonable concession, but it is, perhaps, questionable whether, even then, the loss of its secretary's services in the encouragement of native arts and crafts, such as it was hinted recently it is probable the Royal Academy intends to facilitate, may not outweigh the value of the military service he doubtless is ready to render.

We have received from Rotterdam a description and illustration of a "Grand Pantheon of Humanity," designed by Dr. H. P. Berlage, to be erected after the war "in the centre of Europe on a high hill," accompanied by some poetical effusions in praise of the idea and the great principles of reconciliation, freedom and peace it is to commemorate. The author thus describes his design: "Eight

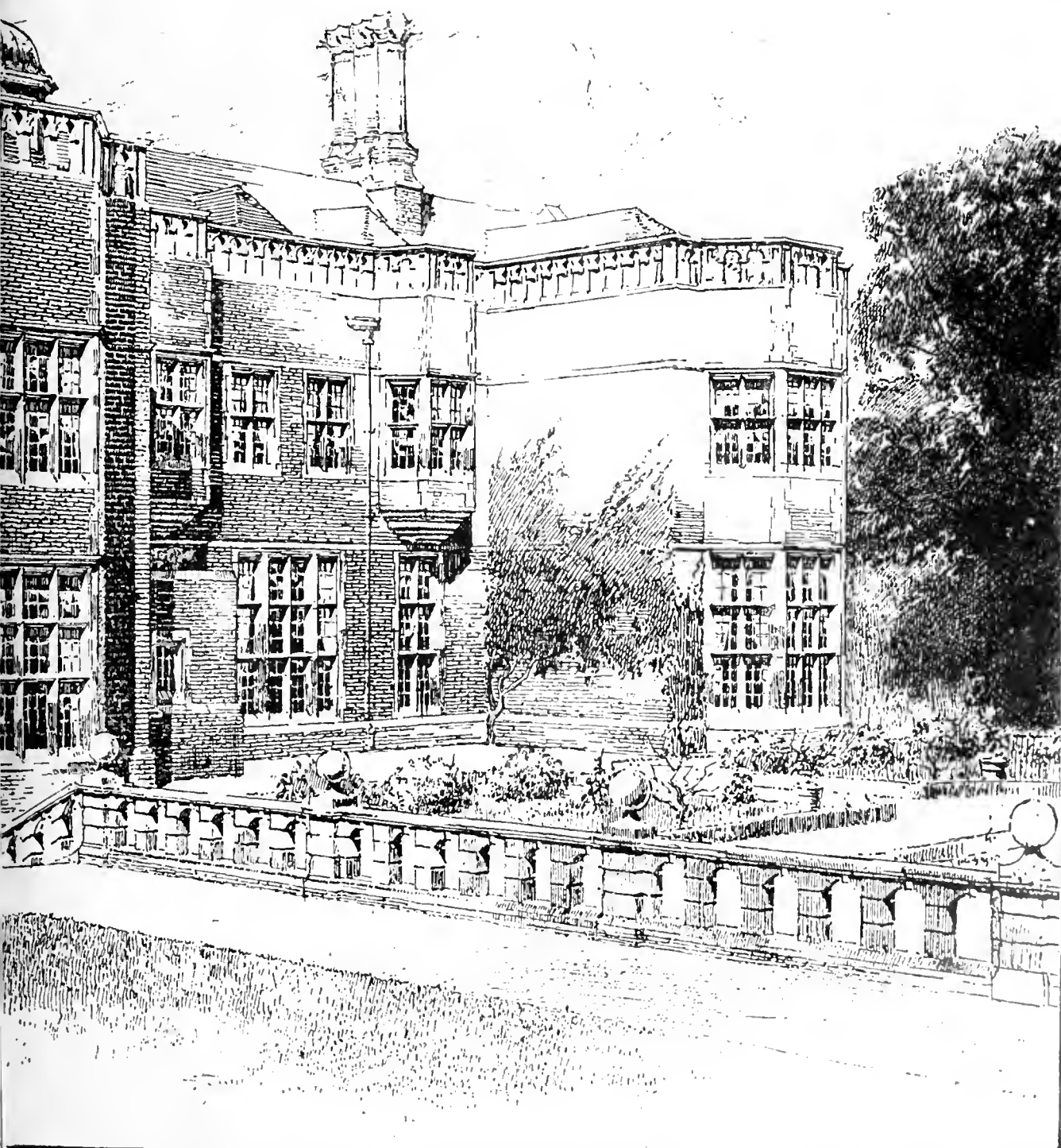
main roads lead up to the entrances from all directions. These, situated between the towers of love and valour, of enthusiasm and thoughtfulness, of knowledge and power, and of freedom and peace, standing like watchers round the great hall and sending the beams of their light far out into the night, lead into the pantheon. On either side are situated the courts of meditation, enclosed by the galleries, memorial to the fallen of the belligerent nations. Along the galleries of reconciliation the great central hall is reached. There, rounded by the gallery of remembrance, solely lit by the light falling through the zenith of the dome, the monument of humanity stands. Further upward the galleries of cognition, of elevation, and of all-embracing universality are reached, while the space is vaulted by the dome of the unity of nations." Nothing is said as to the materials to be employed, and about cost, or who is to defray the expense of creating the somewhat bizarre-looking building, which we are inclined to think will not be erected in our time—unless Mr. Ford or some other enterprising peace-at-any-price man wants a big advertisement.

The too frequent use of inflammable building materials is one cause of the annual fire waste here and in the United States. In works of the better class, measures have been taken to prevent the destruction of buildings by requiring them to be of slow-burning construction, or semi-fireproof. No building even though made of non-inflammable material can be regarded as fireproof if it contains large quantities of wooden furniture or inflammable goods. The intensity of heat generated in a conflagration is so great as to destroy concrete, steel and other non-inflammable building materials. But the use of these materials in buildings greatly reduces the fire risk. The demand for steel window sashes, window frames and doors has developed a new industry in America in sheet metal working, that is, the forming of sheet metal into hollow sections of varied cross-sectional shapes by the so-called channelling machines. These machines are of the rolling mill type, ingeniously devised to laterally fold sheet metal stock into a great variety of mouldings, ogees, fillets and other shapes by a continuous process. The metal is fed to the machine in long strips, and is shaped by the rolls, leaving the machine perfectly formed. The advantages of the channelling process are rapidity of manufacture, saving of material, simplicity of equipment and ease with which patterns can be changed. While beading, folding or seaming of sheet metal by rolls was developed very early in the tinsmith's trade, the design of channelling rolls such as are required in the manufacture of architectural shapes is something with which comparatively few designers are familiar. The rolls are required to bend the material laterally and to draw it through the machine by their tractive effort. Variations in diameter must be compensated for in gearing ratios, and other expedients resorted to in order to accomplish the desired end with a minimum of friction. The uses to which sheet metal shapes produced by the channelling process are put are many. Not only may shapes peculiar to architecture be cheaply made, but many other shapes useful in machine construction, furniture manufacture, concrete moulding and other lines as well. Channelling may be regarded as a special development of press work in which bending rolls, working the piece progressively, take the place of reciprocating tools in the punch press. Manufacturers interested here will find some useful information in the February issue of our American contemporary *Machinery*, New York.





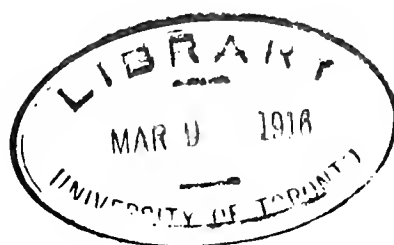
LONGSTOWE HALL, CAMBRIDGESHIRE: NORTH-ENTRANCE FRONT AND WEST DRAW



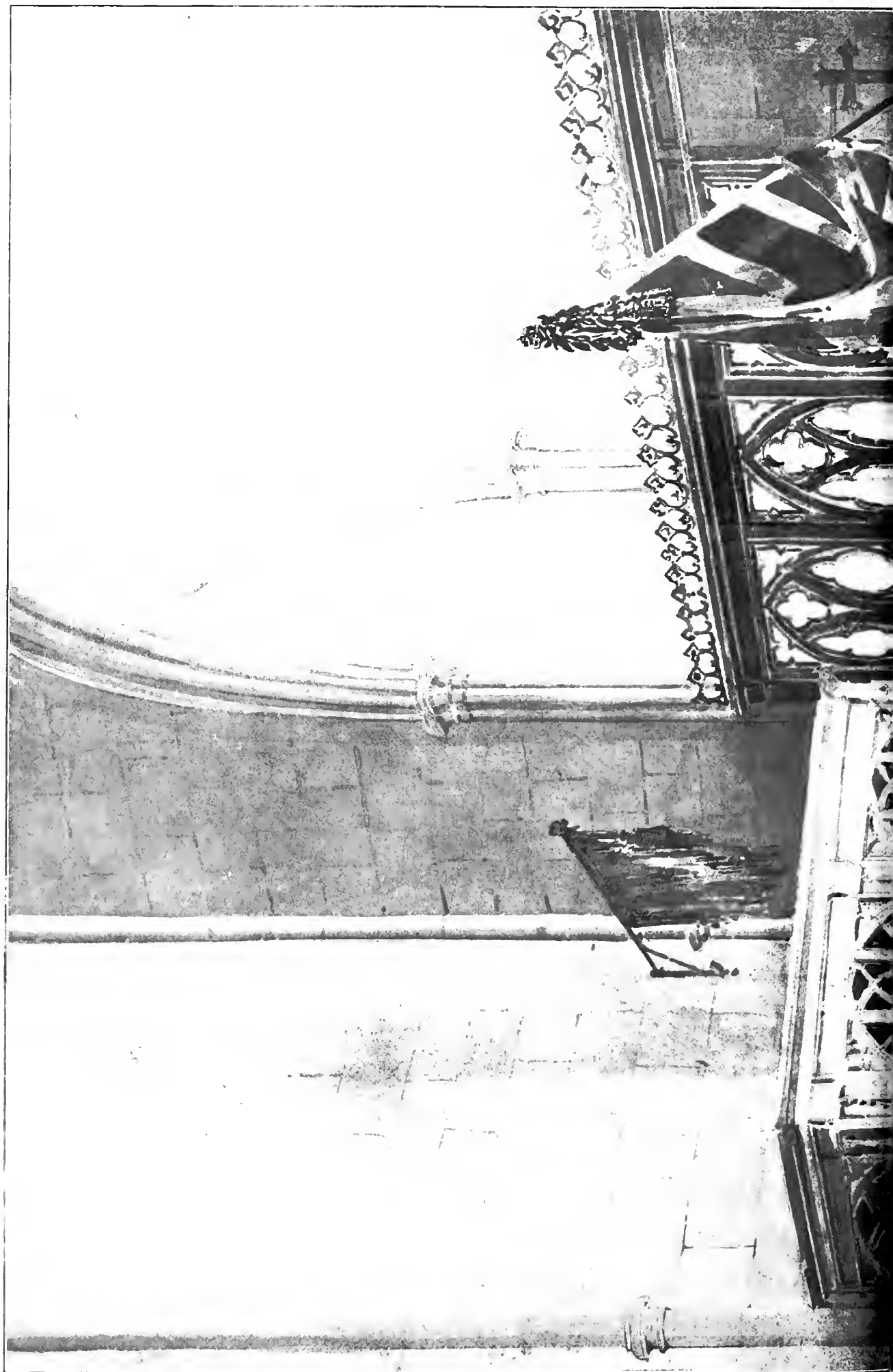
M WINDOWS.—Messrs. JOHN W. SIMPSON, F.R.I.B.A., and MAXWELL AYTON, A.R.I.B.A., Architects.







THE BUILDING NEWS, FEBRUARY 23, 1916.





1915  
G.W.C.

"ANCIENT AND MODERN"

MEMORIAL TO OUR GALLANT HEROES — AN IMPRESSION SUGGESTED BY ENETER CATHEDRAL. BY M. C. W.

1871





No. 2182.



No. 2138.





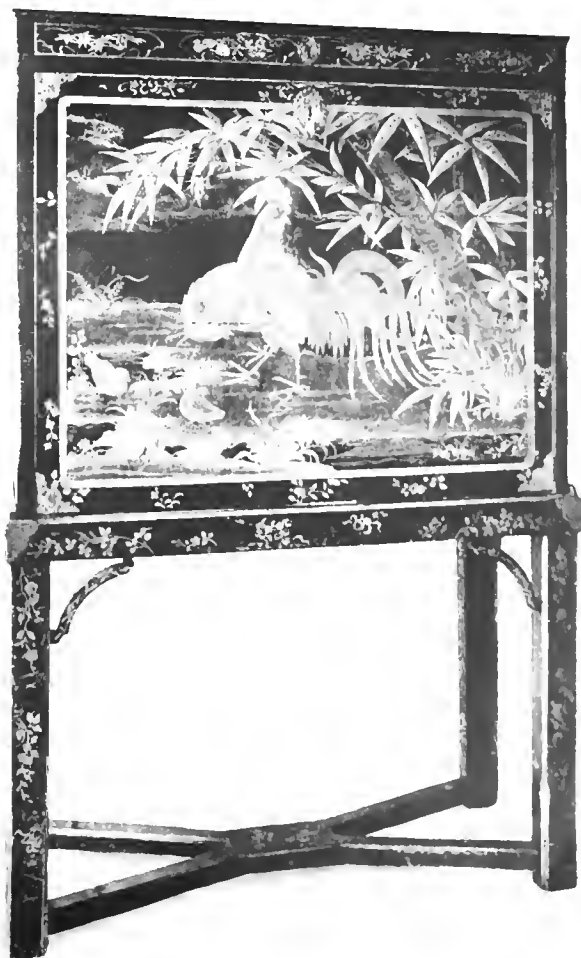
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No. 2080.



No. 2236.



No. 208



## Our Illustrations.

**"ANCIENT AND MODERN." — MEMORIALS OF OUR GALLANT HEROES. AN IMPRESSION SUGGESTED BY EXETER CATHEDRAL.**

The subject of this illustration is the contrast frequently found in our great cathedrals showing the methods of the present generation and those of our forebears who erected monuments to the heroes of many fights. Thus the picture shows in rather a touching way the old faded and torn banner hanging over the ancient tomb, with its tracery and recumbent figure of the dead warrior, while on the other hand is seen the new bright Union Jack and the brass memorial tablet erected in memory of the gallant men who fell in one of the early battles of the present great European war. Mr. G. Wortley Chilton has graphically indicated the difference which all must have realised in many of our historic buildings, and if we are ever to rank as an artistic people we should see at least that suitable memorials to our brave and patriotic dead should be in harmony with the buildings in which they are to be erected. This pleasing water-colour drawing, based upon a study of Exeter Cathedral, is excellent; but the brass plate introduced is, we understand, taken from a similar building, and is here depicted to warrant the obvious lesson suggested by the title: "Ancient and Modern."

### LONGSTOWE HALL, CAMBRIDGE-SHIRE.

The remodelling and reconstruction of Longstowe Hall has taken a considerable time to carry out, and various builders and contractors have been employed. A great deal has also been done by local labour under the immediate supervision of the architects, Messrs. J. W. Simpson, F.R.I.B.A., and Maxwell Ayrton, A.R.I.B.A., of Verulam Buildings, Grays Inn, W.C. The contractors engaged were Messrs. William Cubitt and Co., of London, Messrs. Kerridge and Shaw, of Cambridge, Mr. J. P. White, of Bedford, and others. Mr. H. J. Piper was general supervisor, and Mr. A. H. Hodge did much of the carving, modelling, and sculpture. The sanitary work was entrusted to Mr. T. A. Bean, and he superintended the scheme for sewage disposal. We gave a detail of the garden entrance January 7, 1910.

### OLD FURNITURE FROM THE SYDNEY COLLECTION.

These pieces of old furniture come from a collection which has been gradually brought together for several generations by the Sydney family. They were housed at Froggnal, Chislehurst, the family mansion. The extent of the sale may be imagined: there were no less than 2,793 lots, consisting of many choice pictures, books, and rich old furniture. The furniture here illustrated shows: No. 2080, one of a set of William and Mary walnut high-back chairs, finely carved in scrolls and foliage, with cross stretchers and seats in plush. The six were sold for £78 15s. No. 2436 is a Queen Anne wall mirror in carved and gilt frame, with shell, eagle-head and floral scroll ornamentation and two ormolu candle branches. It is 3 ft. 6 in. high and 2 ft. wide. No. 2087 is an old black and gold lacquered cabinet, the interior fitted with ten drawers, cupboard, secret drawers, pigeon holes, and drawer in frieze; the fall front decorated in landscape with brilliant birds and engraved brass mounts; on table stand with cross stretchers. No. 2236 is a Louis XV. marqueterie tulip-wood and king-wood cabinet, with richly chased ormolu mounts in figures, masks, and acanthus leaf, on scroll feet: it is fitted with five shelves and dress hooks. The cabinet is 6 ft. high and 3 ft. 3 in. wide, and was sold for £252. No. 2182 is a Louis XV. king-wood bureau, with fall-down front, decorated in marqueterie, with basket of flowers, enclosing secretaire, fitted with one long and two small drawers under, on cabriole legs with chased ormolu mounts. It is 2 ft. 7 in. wide, and signed "C. M. Malle." The piece was sold for £52 10s. No. 2138 is a fine Louis XV. marqueterie king-wood writing-table, with chased ormolu

mounts, the top lined with red morocco, fitted with three drawers. The table is 4 ft. 3 in. wide, and realised £409 10s. These are but a few items from this great sale, which was so successfully conducted by Messrs. Knight, Frank, and Rutley, to whom we are indebted for our reproductions.

### HIGHFIELD SCHOOL CHAPEL, LIPHOOK.

This chapel forms a recent addition to a boys' preparatory school, the whole of which the same architect designed for the Rev. W. R. Mills. It contains accommodation for about seventy boarders, and includes large library, museum, gymnasium, swimming-bath, carpenter's shop, and playroom. It has a self-contained lighting, water, and drainage plant. The chapel is attached to the main building by a short cloister, and follows the collegiate plan, with accommodation for about a hundred, and measures internally 67 ft. by 22 ft. by 22 ft. high. It is built of local stone and hand-made tiles, and cost, with fittings, about £1,500. The roof is a barrel vault of roughened plaster of the same colour as the stone; the sanctuary is of black-and-white marble slabs, and the nave wood-block. The whole of the fittings are of oak, relying for effect upon outline, and the only ones elaborated are the reredos and altar-rail (omitted from the drawing to show more completely the arrangement of the east end) and the west screen and organ gallery over, which is brought forward to form canopied return stalls. The building, with the exception of the fittings, was carried out by Mr. Meech, the school attendant, who bought the materials and engaged the necessary labour. The architect is Mr. Gerald Cogswell, A.R.I.B.A., 2, Bedford Square, London, W.C.

### NORTH-EAST CHAPEL IN CHURCH OF NOTRE DAME, MANTES.

This is another of Mr. Alick G. Horsnell's bright and effective Travelling Studentship drawings of Continental architecture. We have previously illustrated others from his pencil in our pages on the following recent dates:—September 29, October 20 and 27, 1915, and the 9th inst. The sketch now reproduced shows the interior of one of the five radiating chapels added early in the fourteenth century to the remarkable choir of the Church of Notre Dame, Mantes, an edifice which, with its slender western towers and lofty nave and choir, is a notable feature on the landscape (to the left overhanging a bridge) to the traveller when some six-and-thirty miles from Paris on the Dieppe and Rouen route. The little town has a special interest to Englishmen, as it was when traversing the streets of Mantes after he had caused it to be set on fire that William the Conqueror was thrown, by the starting of his horse, against the pommel of the saddle, sustaining injuries which proved fatal soon after he had been carried to Rouen. The tradition runs that the Conqueror left a large sum of money for the rebuilding of this church, which had been consumed; but be that as it may, the work of reconstruction was evidently begun in the reign of our Rufus, and was completed before the end of the twelfth century, the only addition being the chevet five chapels around the apse, in one of which, the north-eastern one, Mr. Horsnell sat to sketch. The west front shows some excellent carving, in which there is a suspicion of Classic influence. The interior (nave and choir—there are no transepts) is roofed in with a series of barrel vaults, placed at right angles to an axis, and springing from lintels across the deep triforium gallery, supported by a range of columnettes. In the apse itself these cross-vaults radiate conically from the narrow span of the choir bay to the greater span of the aisle wall. Notre Dame, Mantes, is (and has never been more than) a large parish church; but many visitors, impressed by the twin western towers connected by a gallery, assume that it must be a cathedral, and, indeed, it is inaccurately so termed in most architectural works, including, by the way, Sir Thomas Jackson's recently published "Gothic Architecture."

### OBITUARY.

We regret to announce the death of Mr. Henry Louis Florence, F.R.I.B.A., of Verulam Buildings, Grays Inn, and of Prince's Gate, Hyde Park, S.W., and Royal Crescent, Bath, who died on Thursday, at his Bath residence, after a short illness. Mr. Florence, who was in his seventy-fifth year, and of whom we gave a portrait in our issue of March 7, 1890, was the eldest son of the late John Henry Florence, of Streatham, S.W. He was a pupil of Mr. E. C. Robins, F.S.A., and afterwards passed some years in the offices of the late J. R. Hawkwell and F. Pepys Cockerell, and the atelier in Paris of the late M. Questel. On his return to England he gained in 1869 both the Soane Medallion of the Royal Institute of British Architects and the Gold Medal at the Royal Academy Schools, and a year later the Travelling Studentship of the Academy. After a year's travel in London and in Italy he commenced independent practice in London, and from 1877 until 1887 was in partnership with Mr. L. H. Isaacs, M.P., F.R.I.B.A. The Holborn Town Hall, the Carlton Hotel, a bank in Paddington, the Hotel Victoria and the Constitutional Club, both in Northumberland Avenue, and many mansions and warehouses, were erected from the designs of Messrs. Isaacs and Florence. Mr. Florence's later works include the new library, pension room, and library of Gray's Inn, the restoration of Gray's Inn Hall and the Victoria Memorial, Kensington. An active part in the educational work of the Architectural Association was taken by Mr. Florence, who served as its president in 1878-9, and gave generously to its funds on various occasions. He was Vice-President of the Royal Institute in 1897-99, and had for many years been a generous supporter of the Architects' Benevolent Institution, and had served upon its Council for many years. Mr. Florence, who was a Fellow of the Geological Society, for twenty-one years held a commission in the Volunteer Force, from which he retired in 1892 with the rank of lieutenant-colonel, receiving the Volunteer Decoration. We understand that he has left important bequests to several London hospitals. The trustees of the National Gallery (to whom Mr. Florence left a sum of money in trust) are empowered by his will to select any of his pictures which they consider worthy of a place in the National collection. The funeral service will be held at All Saints' Church, Ennismore Gardens, Prince's Gate, to-day (Wednesday), at one o'clock, and the interment will take place at Norwood Cemetery an hour later.

Colonel Horace G. Clough Taylor, of Leicester, who was for many years associated with the Leicestershire Yeomanry, and a well-known land agent and surveyor, died on Tuesday, the 15th inst., at the age of 60. He had been in failing health for several years, and four months ago was overtaken with the illness which terminated in his death. Colonel Clough Taylor was a son of the late Mr. Edward Clough Taylor, J.P., D.L., of Firby Hall, Yorkshire. He was educated at Barrow, and subsequently articled to Sir John Rolleston, F.S.I., Leicester, to learn the profession of land agent and surveyor. He commenced to practice on his own account in 1880 in Friar Lane, Leicester, and for many years was estate agent to the Earl of Lanesborough and other landowners in the neighbourhood, having at one period something like 30,000 acres of land under his care. Residing for many years at Blaby, he represented the district for a time on the Leicestershire County Council. He retired from that position on accepting the post of surveyor to the Small Holdings Committee, which he relinquished in 1913.

Mr. Henry Parker, a Birmingham magistrate, died suddenly on Monday morning at the Victoria Courts, Birmingham. He became ill, and collapsed in the magistrates' room before taking his seat on the bench. Mr. Parker was about 70 years of age, and was appointed a magistrate in 1914. He was a member of the well-known firm of Parker, Winder, and Acland, ironmasters and iron founders.

A factory is about to be built in Landor Street, Birmingham, from plans by Messrs. Backland, Hewood, and Farmer, of Congreve Street, Birmingham.

## Building Intelligence.

**ENFIELD.**—The Bishop of London consecrated last week the western extension of the 'buren of St. Stephen, Bushhill Park, Enfield. This church, the first portion of which was erected in 1907, is built of Stamford stone, to the design of Mr. J. S. Alder, Lic.R.I.B.A., of 1, Effingham House, Arundel Street, Strand, W.C. The new portion consists of a lengthening of the nave, with a corresponding addition to the aisles, a baptistery, porches, and the lowest stage of the tower. The seating accommodation is for 750. The church stands prominently at a bend in the main London and Enfield road.

**FREEMASONS' HALL.**—Considerable progress has been made with the extension of Freemasons' Hall. The whole of the extensive and difficult underpinning works have been completed, together with all the structural work to the basement, both in the new addition and in a portion of the old premises, and the buildings have been carried up in some parts above first floor level as far as the construction of the temporary approach to New Yard will allow. The necessity for keeping open this approach has considerably delayed the works, but the Holborn Borough Council already has commenced the reinstatement of the permanent New Yard approach roadway, and as soon as this is completed and open for traffic the temporary way will be removed, and there will be nothing to prevent the due prosecution of the work beyond those difficulties connected with the supply of competent labour and of materials which are now inseparable from all building works.

**SPENNYMOOR.**—The new public buildings of the Spennymoor Urban District Council, comprising Town Hall and Market Hall, were opened on Wednesday last. Permission was granted by the Local Government Board to borrow £11,500 for the contract and £3,500 for the purchase of the site, and the work was commenced in 1913. The buildings stand in a prominent position in High Street. The Market Hall is 141 ft. long and 39 ft. wide and 16 ft. high, whilst the Town Hall is 84 ft. long and 40 ft. wide, with platform and gallery having seating accommodation for 850 persons. The council chamber is 32 ft. by 26 ft., accommodation being provided for visitors. There are also seven large-sized shops, all now occupied, and offices for each Council official. There is a tower 90 ft. high, with a four-faced electric clock. The contractor was Mr. J. Miller, of South Shields, and Mr. Wellburn was the architect.

### WATER SUPPLY AND SANITARY MATTERS.

**EAST LOTHIAN WATER SUPPLY EXPERIMENT.**—At the last meeting of the Western District Committee of East Lothian County Council in Haddington, a report from the Stobshiell water supply engineers dealt with an interesting test which had been carried out at the great reservoir constructed at Wanside, where leakage had occurred since the opening of the works. The water of the reservoir stands generally at a level of 32 ft. depth. If this level were exceeded to any extent, the leakage discharge increased. The board desired, with a view to seeing if the leakage were diminishing by silting or otherwise, to have the water level in the reservoir increased to 38 ft., and kept at this height for a week. The engineers' report dealt with the carrying out of this test. The report stated that the result of raising the level was to increase the leakage by about 6,000 gallons per twenty-four hours, viz., from 34,390 to 40,750 gallons a day. The disappointing conclusion arrived at is that the leakage is not silting up.

At Hall Mr. P. M. Crosthwaite, an inspector under the Local Government Board, will hold an inquiry to-day (Wednesday) as to an application for the city council for sanction to borrow £24,176 for building a new bridge in South-east Lane.

We are asked to rectify an error which crept into the advertisement of the British Reinforced Concrete Engineering Co., Ltd., in our issue of February 9. The architect of the Danum Hotel, Doncaster, should have been stated as P. Robinson, Esq.

### PROFESSIONAL AND TRADE SOCIETIES.

**FLEMISH ART OF THE MIDDLE AGES.**—Before the members of the Birmingham Architectural Association on Friday night, Mr. J. A. Swan, F.R.I.B.A., lectured entertainingly on Flemish art of the Middle Ages as reflected in the incomparable public buildings which the Germans during the past eighteen months have laid in ruins. Flemish art, it was said, borrowed much from the German and French, but he held it undoubtedly indigenous. For its true character they must search the record of the great towns. In spite of the strong German and French influence there was a great unity of expression, whether in architecture, painting, sculpture, or the allied arts, Gothic or Renaissance. They were much imbued with the spirit of romanticism. It would not be too much to say that the countries closest in contact with the Netherlands were infected with this exuberant vitality. They took it to themselves, and our own country owed an immense debt to Flemish art in the Elizabethan and Jacobean periods. In architecture the best of the Flemish work was built for secular rather than ecclesiastical use. Bruges, Ghent, Antwerp, Malines, Brussels, Louvain, and Ypres provided a magnificent series of Town Halls, Cloth Halls, belfries, and Guild Houses. Ypres, which held much beautiful Flemish work, was now a tragedy in stone. But what magnificent work there had been there! The familiar Cloth Hall and Hotel de Ville owed much to the splendid square of 1,000 ft. by 350 ft. in which they were set, an example of civic planning worthy of emulation. It gave an impressiveness and grandeur to the building. Mr. Swan compared it to Victoria Square, the setting for Birmingham's civic buildings. A hundred years ago Ypres might have been emulated in Birmingham by acquiring the whole of Christ Church, Colmore Row, and Waterloo Street up to St. Philip's Church.

**THE ANCIENT ROOF OF GLASGOW CATHEDRAL.**—At the monthly meeting of the Society of Antiquaries of Scotland, held on the 15th inst. in the rooms of the Royal Society, Edinburgh, the Hon. John Abercromby, LL.D. (president), in the chair, Mr. W. T. Oldrieve, F.S.A.Scot., F.R.I.B.A., read a communication on "The Ancient Roof of Glasgow Cathedral: Its Condition and Restoration." It was pointed out that only two of our Scottish medieval cathedrals have survived to the present time with any part of their original roofs—these are St. Magnus Cathedral at Kirkwall and St. Mungo's at Glasgow. An examination of the roof by H.M. Office of Works in 1909 revealed that a large number of the rafters were badly decayed, that the repairs carried out in 1755 or 1824 had not appreciably strengthened the roof trusses, and that in several cases the lower ends of the rafters had entirely disappeared, having no bearing whatever upon the wall-head. Dealing first with the choir, Mr. Oldrieve went on to say that a minute inspection of details revealed the following facts: That there had been no tie-beams, as was at first thought probable, because the details of the old jointing at the foot of the rafters varied so much that this appeared impossible, and that originally there was internal boarding. The original rafters had been shaped so as to form a trefoil or cusped roof, a most unusual design for the trussed rafter type of roof in a church of large dimensions. Dealing with the nave, Mr. Oldrieve pointed out that there was no evidence of internal boarding of the roof of that part of the cathedral. The timbers were of the same trussed rafter type, but without the trefoil suggestion.

**THE LACQUER ART OF JAPAN.** A lecture by Mr. Arthur Kay, F.S.A. (London and Scot.), with lumière autochrome slides, taken direct from the objects, was delivered in the New Gallery, Shandwick Place, Edinburgh, on Wednesday. The lecturer stated that amongst the Japanese art was part of their life. The end and aim of their art was decorative. There were no picture galleries in old Japan. The people did not need them. A series of lectures would be necessary to lead an audience near to the heart of the Japanese. There was about this wonderful

race, and their art, something at times almost demoniacal; he used the word in its best sense. In 1873 the Japanese Government sent a collection of lacquer to the Vienna Exhibition. The steamer carrying the whole exhibit sank off Cape Idzu on its way back to Japan. Many months afterwards the collection was salvaged. The modern lacquer was ruined; the ancient remained uninjured. Good Japanese lacquer was upon a foundation of the finest cabinet work which had ever been created by human hands, not, as some supposed, upon "papier maché." The founder of the first school of lacquer artists was Mitsumo-no-Sakune, who lived about 375 B.C. The earliest authentic work in lacquer was the scabbard of the Emperor Shomi's sword, 725 A.D.; it was now in the Todaiji Temple at Nara. Japanese lacquer was the direct natural juice of the Urushi tree. The older the tree the better the lac. The strange character of this juice was that it would only dry in a damp atmosphere at an average temperature of from 68 to 80 degrees Fahrenheit. When the best lacquer was hardened it was not affected by hot liquids or spirits, and only by one or two of the most mordant acids. The cabinetmakers prepared the faultless woodwork as a base; sometimes worked it down almost as thin as paper.

### TRADE MOVEMENTS.

**WAGES IN THE BLACK COUNTRY BUILDING TRADE.**—Trouble is threatened in the building trade in various parts of the Black Country in consequence of the refusal of the employers to grant the demands put forward by the carpenters, bricklayers, and labourers for an increase in their wages of 2d. per hour. Some time ago the Master Builders' Association granted the employees in these three sections of the trade an advance of 1d. per hour for the period of the war, and they contend that not only is the present application unwarranted, but that the demand is a breach of the agreement entered into between the parties during last summer when the previous increase was granted. The question has been placed before the National Conciliation Board for their ruling upon the point raised by the employers.

### TRADE NOTES.

Boyle's latest patent "Air-Pump" ventilators have been adopted for new extension to Wigan Infirmary, Wigan.

Ironite flooring is being used at the Belgian Munitions Works, Twickenham; the B.S.A. Works, Birmingham; and the Clyno Engineering Works, Wolverhampton.

The value of any concrete building is reduced if the concrete is not waterproof. In some cases the use of a porous concrete has produced such dampness upon the interior walls as to render the structure useless for the purpose intended. We learn that the urinal in the People's Park, Grimsby, was treated many months ago with Puddoed cement, and the borough surveyor is pleased with the result.

### MEETINGS FOR THE ENSUING WEEK.

**FRIDAY (Feb. 25).**—Glasgow Architectural Craftsmen's Society. "Descriptive and Practical Geometry," by James S. Boyd, Lic.R.I.B.A., 7.45 p.m.

**MONDAY (Feb. 28).**—Royal Institute of British Architects. Special business meeting for election of Royal Gold Medallist, 4 p.m.

Institution of Sanitary Engineers. "Sanitary Work with the Expeditionary Force," by Nandy W. Hoskins, R.A.M.C., 8 p.m.

St. Paul's Ecclesiological Society. "The Choir of Lincoln Cathedral," Part II., by J. B. Fox, 8 p.m.

**THURSDAY (March 2).**—Architectural Association of Ireland. Paper by R. M. Butler, F.R.I.B.A., 15, South Frederick Lane, Dublin, 8 p.m.

The *Frankfurter Zeitung* states that "the German Americans" have assumed responsibility for rebuilding the entire province of Ragnit, in East Prussia, one of the districts which felt the impact of the Russian invasion. A German architect will be sent from the United States to supervise the work.

Mr. William Eve, F.S.I., the well-known assessment surveyor, Union Court, Old Broad Street, died on Sunday week at the age of eighty. He had been established in Union Court for about fifty-six years, and at the time of his death he was professionally representing eight London boroughs. In 1902, Mr. Eve served as Mayor of Stoke Newington.

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At the last meeting of the Edinburgh School Board Dr. J. A. Shoolbread, Convener of the Health Committee, reported that a de-

The new Civic Improvement League of Canada was formally brought into existence at Ottawa on January 20 at a conference which

## TO ARMS!

BY ORDER  
MARGARET M. VESTLEY, Assistant.



During the strong wind which passed over the Selby district on Wednesday, damage was done to the west end of Selby's famous Abbot's church. The large floreated cross, which was erected in 1871, and is 4 ft. in height, being thrown down from the gable-end of the nave.



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

Effingham House,

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## OUR ILLUSTRATIONS.

S.W. View of the New Cathedral, San Francisco, United States of America. Mr. Cecil G. Hart, Architect.	
Wroughton Manor House, near Swindon. Front, to Road, and Garden, Dining Room, and Hall, corner of Courtyard and Bedroom.	
Portable Gift Houses from Canada for France and Belgium.	
Shop Front, 189, Strand, for Messrs. Austin Reed, Ltd. Mr. C. P. J. Westwood, A.R.B.A., Architect.	

### BLAST-FURNACE SLAG PORTLAND CEMENT.

In our issue of February 2 we gave some interesting extracts from a recent paper read by Mr. B. J. Day on Portland Cement, before the Institution of Engineers and Shipbuilders of Scotland, in which the author specially directed the attention of his hearers to the possibilities dormant in the waste products that are accumulating daily, and to the possibility of manufacturing a usable first cousin to Portland cement therefrom, of a nature at least equal to German Eisen Portland cement, the manufacture of which has attained large proportions.

The valuable discussion on the paper which appears in the February issue of the *Transactions* of the Institution, published at its offices, Elmbank Crescent, Glasgow, is well worth perusal by all concerned. We have only room here for a few notes on the special points mentioned.

Mr. T. B. Shore said he could not understand why Mr. Day should turn backwards, as it were, to introduce the possibilities of that admittedly inferior "first cousin," as Mr. Day called it, slag cement. He (Mr. Shore) thought that it should be classified as a much more distant relative. Mr. Day was somewhat guarded in his references to this cousin; perhaps this was in view of its bad reputation. In practically all cases where cement was used it was intended that the work should be permanent. Blast-furnace slag contained free sulphur, and this in contact with cement would disintegrate the cement. Some twenty years ago he was connected with the building of several bridges in the north-east of England, the abutments of which were in ordinary mass concrete which was not faced by brick or stone. After the bridges had been built about five years it was found that the mortar binding the stones together was totally decomposed; in fact, anyone could pick it out with his fingers, and the whole of the abutments of the bridges had to be taken down and were rebuilt in brickwork. Many experts were called in to see what had happened, and after much deliberation the opinion formed was that the failure was due to the sulphur in the slag of which the aggregate was composed. Mr. Day stated in his paper that "In order to treat blast-furnace slags, they should first of all be granulated; . . . this has the effect of removing a large percentage of sulphur." Unless the sulphur was entirely removed there was danger. Certainly cement containing sulphur should not be used for reinforced concrete work. He had seen several tests of slag cements, and they had all been well above the requirements of the British Standard Specification with respect to tensile strength, etc. Concrete made with slag cements,

when broken open, was of a peculiar blue colour, and pieces of the broken concrete when heated for a short time gave off a distinct sulphurous odour. He admitted that it was just possible that when the sulphur was combined with the ingredients from which cement was manufactured its influence might not be so harmful when used for ordinary mass concrete work.

Mr. Edwin H. Lewis protested very strongly against the misuse of the term "slag cement," because there were several cements made from slag. The original slag cement, which in Germany was universally called slag cement, was made from lime and blast-furnace slag, mixed in a certain proportion, but not burnt together to make clinker. In Germany the terms were kept quite distinct as between slag cement and Eisen Portland cement. Eisen Portland cement was made from pure Portland clinker, which was burnt either from blast-furnace slag and limestone or from other raw materials, with an addition, which must not exceed 30 per cent. of the whole, of granulated blast-furnace slag. It was also possible to make and use the pure clinker from blast-furnace slag and lime without any addition of slag, but it was a fact that the addition of slag in certain proportions, and having certain chemical and physical properties, actually improved the cement. That had been proved by experience, as anyone could read in Dr. Passow's treatise. Going a step further, Mr. Day held out the British Standard Specification as a model of perfection. He (Mr. Lewis) entirely disagreed with that. He was very sorry to keep mentioning German methods, but all must keep their eyes open to what the Germans had done in various industries, and he contended that their compression and test was very much more satisfactory than any tensile test. At the same time the British Standard Specification had certain great advantages from the engineer's point of view, because there were so many handles he could take hold of and throw out any cement he did not like. To come back to what Mr. Day called slag cement, and which he (Mr. Lewis) called Portland cement made from slag, he would like to say that it was quite possible for such cement to come up to all the requirements of the British Standard Specification, and the tests, which had already been quoted by another speaker, of cement made by his firm, the Glasgow Iron and Steel Company, came up to all the requirements of that specification. They were made from a sample representing the first silo of cement made at Wishaw. It represented about 400 tons, which was the first cement of the kind made in bulk; and, besides coming within all the requirements of the British Standard Specification, the sand test at seven days showed a tensile strength

of 364 lbs., and at 28 days 465 lbs. Mr. Day mentioned that the liner the cement was ground the better the results one got from the tensile test. For the sand test that was quite true, but it did not necessarily follow for the test of neat cement. He thought that if the gentleman who raised the point with regard to free sulphur saw a rotary kiln in operation he would not think there was much free sulphur left in any clinker that went through that process. In Glasgow Portland cement steps were taken to keep the sulphur content below the quantity admitted by the British Standard Specification, and so to ensure that no trouble should come from this cause. Another speaker had mentioned that the slag cement of another firm had been accepted by the Admiralty, and he (Mr. Lewis) understood him to say that cement from the Glasgow Iron and Steel Company had also been accepted. He just wished to add that that was a fact, if it was of any interest.

Mr. John Train said, with regard to slag cement, he was very much struck with what some of the speakers had said about it. He was one of those who had, till about two years ago, laughed at slag cement; but just about that time his firm had a job where the engineer was willing to have Coltness cement, which was the best known slag cement in this part of the country. The job in question was a sewage disposal works in the county of Lanark, where the cement would get very rough usage, and where there were tanks to be constructed partly under water. The proviso in the specification was that the cement must lie on the job twenty-eight days before it was used, and that samples of the cement were to be tested. This was rigidly carried out, with satisfactory results. The job was ultimately finished, and not a bag of that cement was rejected. It passed all the tests required by the British Standard Specification.

Mr. H. Le Marchant said, in describing slag cements, it was not possible to include them in one class as "first cousin to Portland cement," as Mr. Day had done. There were, in fact, three classes of slag cement, viz., that which had been the subject of so many German patents, and which, as Mr. Day said, was better than hydraulic lime, and one might be inclined to add, generally better. The next class was typified by the German Eisen cement, and the third class was genuine Portland cement made from slag, of which the cement made by his firm was an example. He had seen a genuine article made by his firm, which was hardened. The third class was that which the manufacturer, as mentioned in Mr. Day's paper, of the cement that was manufactured would be entitled to be called Portland cement, of the quality were in accordance with the British Standard

**Specification** With regard to the first class this material only needed to be tried by cement-users to be condemned once and for all, and the fact that Scottish ironmasters who attempted to put such cement on the market did not take very long to reconstruct their plant so as to produce one or other of the alternative descriptions of slag cement would no doubt be sufficient warning to others. With reference to the second class—viz. that consisting of a genuine Portland cement adulterated with slag, such a manufacture was not in keeping with the traditions of the leading ironmasters, who would doubtless abhor adulteration in any form. Moreover, it was only a question of time before the users of such cement found out that, if any adulteration was to be done, they could do it themselves with much greater advantage to their own pockets. With regard to the third class, this, as he had already stated, might be entitled to the description of Portland cement, if the manufacture was successful; but herein lay the doubt. The process of manufacture of this material described by Mr. Day involved, in the first place, selection of the raw materials for the production of iron, so that the resultant slag had a certain desired composition. This alone constituted a serious interference with the blast-furnace operations, and was not likely to encourage ironmasters. If, however, slag of suitable composition could be obtained, it first of all had to be granulated, then mixed with limestone in definite proportions; and, finally, the mixture had to be finely ground, when the rest of the manufacture proceeded on exactly the same lines as Portland cement, but at the expense of additional trouble and increased cost of production. Mr. Day had hinted at the difficulties attending the proportioning of the raw mixture, and also the grinding of the slag, and when these difficult operations were compared with the simple operation of mixing chalk and clay in a wash-mill, which constituted the parallel process in an ordinary Portland cement works, the outlook for the ironmaster who desired to make a fortune out of his by-product was not encouraging. In fact, the manufacturer desiring to make use of slag started with a raw material which was fouled with sulphur, and which was difficult to prepare; while at the same time the cost of granulation and handling was probably as much as he would have to pay for quarried raw materials of suitable character. Although there was a glamour about the use of a by-product, the fact that large cement manufacturing concerns, who were spreading their efforts at manufacture all over the country, were not availing themselves of the slag which could be obtained in such large quantities should give sufficient proof to the newcomer that there was not much to be gained by the use of slag in the manufacture of a sound quality of Portland cement as the material was known to-day.

Above we have the experience of several eminently practical men of wide experience arriving at the most opposite conclusions. It will be noted, however, that the first quoted arrived at his opinion on an experience of twenty years ago, during which, possibly, much water has passed under other bridges than that referred to; that the second speaker reminded those who heard him that slag cements, even in Germany, differed for better or worse, and that it would seem that some of us, at any rate, have learned something from German failures. Another confirmed this, and a fourth speaker apparently admitted that if their furnace slag were made as the author of the paper had described, it would be usable. Possibly the final conclusion arrived at by the last quoted

authority is one that further experiment may reverse, if aided by the mutual co-operation of all concerned. In any case, the matter is one for further discussion, for which we should be glad to find space if informative and unprejudiced.

### BETTER DESIGN OF REINFORCED CONCRETE.\*

By M. T. CASTELL, Lic.R.I.B.A.

Reinforced concrete is a combination of Portland cement concrete and steel, two of the most important materials used for construction, which, if used separately, have each their advantages and disadvantages. If combined, of the right quality and properly proportioned, the resulting material will have the advantages of both and the disadvantages of neither.

Concrete alone has great strength in compression, its crushing resistance when a month old being approximately 2,500 lbs. per sq. in. It is very durable in any position, is practically everlasting, costs nothing for maintenance, and its strength increases with age, but it is of little value in tension, its ultimate resistance being about 200 lb. per sq. in. It is a good material to resist heat, but it is not elastic or ductile, and owing to the lack of these properties and to its weakness under tension, it will quickly develop cracks in resisting the slightest contraction which takes place under variations of temperature. These cracks, however small, will destroy the slight tensional resistance the concrete might otherwise offer. Consequently concrete alone can be used for such structures or parts of structures that are in compression, and this, in many cases, necessitates a very large mass of concrete, and, consequently, a much greater weight and demand on space than is desirable. An obvious disadvantage of plain concrete is its great bulk and consequent weight and demand on space.

#### ULTIMATE STRENGTH OF STEEL.

In steel we have a material of great strength in both compression and tension, its ultimate resistance being as much as from 60,000 lb. to 100,000 lb. per sq. in., but its strength diminishes with age. This is chiefly due to oxidation, which takes place on exposure to moisture, acids, or to atmospheric influence. This is very detrimental to its strength, even 1/40 of an inch of rust on a 3/4-in. bar will diminish its strength by 13 per cent. Another disadvantage is its excessive expansion and loss of strength under a high temperature. Steel gains in strength with heat up to 500 degrees F.; beyond this it rapidly diminishes in strength. With a rise of temperature from the normal to 500 degrees, a beam 26 ft. long will expand one inch. With a rise of 1,000 degrees, it will expand one inch to 13 feet. In ordinary house fires, the temperature seldom exceeds 1,000 degrees, but in large buildings it is known to have exceeded 2,500 degrees. This first attracted particular notice during the inspection of the ruins of the great fire at Baltimore in 1904. It was there noticed that in some of the large buildings brass and cast-iron was entirely fused. Fusion had also taken place on the corners and angles of certain steelwork. Here it was also noticed that concrete formed a far better fire protection than terracotta, which has many times been further exemplified since that date. This is owing to the expansion of terracotta being approximately twice that of steel. Under the above conditions, excessive stress is set up in beams, stanchions, and frame structures due to the resistance of their loads and fixed ends preventing longitudinal expansion. This stress far exceeds what the steel is capable of resisting, especially in its weakened condition; the beam or stanchion therefore buckles and causes collapse of the structure. Collapse is often due to the deflection of beams causing eccentric loads on the columns, which set up a stress far in excess of what they are capable of resisting. Another disadvantage of steel structures is the comparatively high cost of maintenance; also, the fragile appearance of

framed structures suggests weakness rather than strength; these framed structures are also unsightly, and cannot be made artistic or pleasing in effect without largely increasing their weight, initial and maintenance costs.

#### STRENGTH, TOUGHNESS, RIGIDITY.

In reinforced concrete properly designed and made, the two materials act together as one. An important point in designing is to see that the materials and methods are such as to insure this being the case. Consequently, we have the strength, toughness, and rigidity of steel, the appearance of stability and strength, the steel permanently protected from oxidation, no loss of strength with age, a saving in the cost of construction, speedy erection, very little or no charge for maintenance, and a material adaptable to all forms of architectural and structural work. Furthermore, numerous experiments, together with the lapse of time and very severe tests to which it has been subjected in existing structures have proved conclusively its absolute reliability for the construction of structures above ground, below ground, and under water, for the workmen's cottages to millionaire's mansions, for business premises, hotels, churches, theatres, public buildings, electric power stations, gasworks, factory chimneys, reservoirs, water mains, conduits, sewers, grain elevators, roads, bridges, breakwaters and sea defence works, and numerous other purposes. It is a method of construction which is fast superseding that of brick, wood, stone, and iron, and is far superior to any one of these in resisting water, fire, earthquakes, atmospheric influence, and even burglar attacks, which is a great consideration with the construction of strong-rooms for banks and business premises. For even with the oxy-acetylene blowpipe the time required to cut an opening through a slab sufficiently large to operate would alone prohibit this method of attack without considering the alarming noise of the lamp during operations.

Of the valuable properties reinforced concrete may possess, few will exist if the work is not properly designed and executed. The latter is quite as important as the former, for if the greatest of care is taken with the design and careless supervision given to the construction the result may be as bad or probably much worse than if the work was badly designed. In fact, a poor design well constructed may give a much better result than a good design badly constructed. The supervision should include careful inspection and testing of all the materials; attention to the preparation; erection and removal of the forms; to the gauge, mixing, and placing of the concrete; to the size and placing of the reinforcement according to the drawings; to the position and condition in which slabs and beams are left unfinished at the end of a day's work; to the condition of unfinished work before its continuation or completion; and to the protection of newly finished work from building operations and inclement weather. All these points are of the utmost importance if we aim at the best possible results. It is, therefore, absolutely necessary that constant expert supervision be given to the construction.

#### COMBINE ECONOMY WITH STRENGTH.

In designing, strength is generally considered the chief point. Strength, however, should always be considered together with economy. This has not been done in the past to the extent it should have been, and the neglect has been very detrimental to the progress of the work. It has given the public the impression that this method of construction is more expensive than brick, stone, or steel; but it is not—there is a great saving in cost on large structures, and also on small ones, providing there is sufficient repeated detail to keep down the cost of form construction. Economy in design has sometimes to be considered from two points of view—the engineering and the architectural; these will not always coincide. The most economical engineering structure would have a certain arrangement of beams, slabs, columns, walls, etc., all spaced and proportioned in the most efficient manner and with a definite percentage of reinforcement all determined with due regard to the loading

\* A paper read before the Winnipeg Branch C.S.C.E.

and with a view to obtaining the strongest, most satisfactory and cheapest structure. But if these engineering points were the only ones considered by the architect, the result in some cases would be very uneconomical. The engineering structure may be considered either a plain mass or a skeleton framework devoid of architectural embellishments. The architectural structure is the engineering structure made more presentable by the addition of fittings and embellishments. Economy on the engineering side is purely structural, and in a building it is attained or partly attained by keeping the floor slabs thin, by a free use of beams or columns and keeping the beams thin and deep, also by graduating the columns in size according to their different loads.

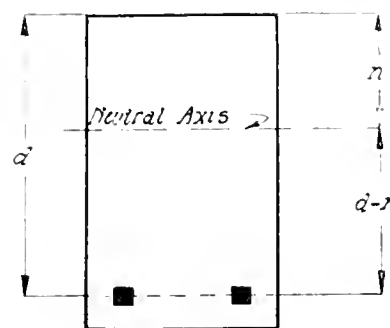
#### ARCHITECTURAL FEATURES.

This, from an architect's point of view, might turn out very uneconomical, as it might involve so much additional finishing in the way of cornices and other details, also extra expense to secure efficient light and ventilation than would be the case if thicker slabs with fewer and more shallow beams were used. Therefore, if we wish to design economical structures, there are many factors to consider. The most important of these, however, are the ones which influence all structures, and should be considered by both the architect and the engineer where these are both concerned. They are: (1) The ratio of breadth to depth of beams, (2) The percentage of reinforcement, (3) The general arrangement of layout of beams and columns. In regard to the first factor, the most economical section for rectangular beams is when the breadth is about 1.3 the depth, but this gives a deeper beam than is desirable for most purposes. To have less depth means an increase of width, which is placing the concrete in a less effective position. Consequently, a larger section would be required. The increase in volume and cost, however, is not great until the width exceeds 0.6 of the depth, which is a good proportion for general purposes and is the one largely adopted. The depth of a beam with double reinforcement is less than would be required for a beam with single reinforcement. The second set of reinforcement is added to assist the concrete in taking the compression, owing to the depth being insufficient to provide enough concrete for the purpose, but compression reinforcement is always very lightly stressed, seldom to more than 7,500 lb. per sq. in., which is due to the fact that it cannot be stressed more than  $m$  times the stress in the concrete surrounding it, where  $m$  equals the ratio of the moduli of elasticity of the concrete and steel. Consequently, a comparatively large proportion of steel is required to make good for a small decrease in the beam's depth. Beams with double reinforcement are very rarely as economical as beams with single reinforcement. Their cost will vary with the ratio of breadth to depth, the percentage of steel and the ratio of top reinforcement to bottom reinforcement.

#### PERCENTAGE OF REINFORCEMENT.

In regard to the second factor, i.e., the percentage of reinforcement, attention to this is of the utmost importance: great waste is often occasioned through an excess of steel being used. There is a certain percentage that will give the most economic section: it is that which is such as to allow both the steel and concrete to be stressed to their allowable limits at the same time. For instance: if the allowable stress for the steel is 16,000 lb., and for the concrete 600 lb., which are the usual values, the concrete and steel should be so proportioned as to allow these stresses to exist when the structure is fully loaded. We then get the full value out of each material. If one of these materials is understressed, it means there is an excess of that material, and consequently a waste. Now, for different classes of concretes there will be different percentages of steel required to give this result. The difference will depend on the difference in the strength and on the ratio of the moduli of elasticity of the concrete and steel. For hard stone, granite or gravel con-

crete the modular ratio equals 15 and the economic percentage of steel for the above stresses equals 0.675. For broken brick or limestone concrete the modular ratio is 13. For cinder concrete it is 30. Now, from this it follows that in a beam, floor, retaining wall, or any part of a structure under a bending stress and built of hard stone concrete, the sectional area of the steel for single reinforcement should be 0.675 per cent. of the sectional area of the concrete. If there is more than this it will not be fully stressed; therefore the excess is waste. If there is less than 0.675 per cent., the concrete cannot be fully stressed unless the steel is overstressed. The reason for this is as follows: In any member of a structure under a bending stress the total tension equals the total compression, and the tension at any distance from the neutral axis is equal to the compression at the same distance the other side of the axis, also the stress in the steel at any point is equal to the stress in the concrete at the same point or at the same distance from the axis multiplied by the ratio of the moduli of elasticity. Therefore, if this ratio is 15, the stress in the steel is fifteen times as much as the stress in the concrete immediately surrounding it, and it cannot be stressed



more under any consideration, unless the stress in the concrete is increased.

#### POSITION OF AXIS.

This also is why the compressive reinforcement in doubly reinforced beams is always so much understressed. Now, if the axis is at the half-depth, the stress in the steel will be fifteen times the maximum stress in the concrete, which is little more than half its allowable limit. Therefore, as the steel takes all the tension, much more steel is required than if it could be higher stressed, but to be so it must be further from the axis. The exact distance will depend upon the ratio of elasticity and the allowable unit stresses. The higher the steel is stressed, the less will there be required to take the whole of the stress with the same quantity of concrete, and the further will the steel be from the axis. From this it is evident that when the steel and concrete are fully stressed the neutral axis must be somewhere above the half-depth, and it approaches the compression surface as the stress in the steel increases. Therefore, the position of the axis varies according to the value of the ratio of elasticity and the proportion of steel to concrete, and as the area of steel and concrete depends upon the intensity of stress, we may say that the axis varies according to the value of the modular ratio and the proportion of area of steel to area of concrete. Also, the maximum stress in the concrete is to the stress in the steel as the distance of the axis from the compression surface is to distance of the axis from the steel. Thus, referring to Figure:—

$$c : t :: n : (d - n).$$

Where  $c$  = the compression at top of beam, and  $t$  = tension in the steel;  $m$  = the ratio of the moduli of elasticity of the concrete and steel.

From this we see the error of the early designers in assuming the axis to be at half the depth. We also see that with a certain stress in the concrete for the steel to be stressed to a given amount, it must be

at a definite distance from the axis. If a certain sectional area of concrete is to develop a certain area of steel as required to carry a definite stress, to be developed in the concrete and steel, knowing these fundamental facts, it is not much difficulty to find the position of the chief factor of the bending stress, and knowing the stresses the position of this, it is, therefore, easy to determine. We also know how the stresses are related that all the compression is taken by the concrete above the axis. With this knowledge, it is only a simple mathematical problem to design a formula whereby we can determine the section of a beam that will contain sufficient concrete above the axis to take the compression, after which we have only to add the percentage of the reinforcement necessary to develop our required stresses.

#### MATERIALS AN IMPORTANT CONSIDERATION.

The nature of the materials is a very important consideration. Where strength is the chief point, the concrete aggregate should be gravel, broken granite, trap or similar hard igneous rock. For work up to 3 in. thick, the aggregate should be graded from 3/16 in. to 3/8 in., and up to 2 in. for work 6 in. thick. Above this thickness it may be graded up to 1 in., but not larger. The sand should be quartz, clean and quite free from ligneous, organic, or earthy matter, and from alkaline or acid pollution. Sufficient should be used to completely fill all the voids in the aggregate, with a little in excess.

The cement should be Portland, ground exceedingly fine, and in all other respects comply with the standard specification and methods of testing.

The reinforcement should be mild steel. High carbon steel should not be used, as its yield point is not so reliable as that of mild steel. It should have an ultimate strength of not less than 60,000 lb. per sq. in. with a yield point not lower than 50 per cent. of the ultimate strength. It should be free from seams and foundry scale, and under no consideration should it be painted or galvanized, as this prevents the adhesion of the concrete to the steel and thus destroys the bond upon which the theory of design depends.

#### LIMITATION OF PAPER EXPORTS.

The Royal Commission on Paper appointed by the Board of Trade have issued regulations as to licences for the importation of paper and paper-making materials. It is provided that on and after March 1, 1916, no paper or paper-making materials shall be imported by any persons other than those who are licensed by the Commission or by an agent acting on behalf of a person so licensed. Licences may be granted to paper-makers to import during the twelve months commencing March 1, 1916, two-thirds of the weight of imported materials which they consumed in the standard year. Licences may also be granted in exceptional cases to dealers in paper-making materials at the discretion of the Commission. Licences may be granted to importers of paper to import during the twelve months commencing March 1, 1916, two-thirds of the weight of paper which they imported in the standard year. The standard year shall be 1914.

Licences will be granted subject to the condition that the licensees comply with the regulations of the Commission as to the distribution of the materials of paper imported, and of the paper made from the imported materials. The licences issued will be subject to withdrawal by the Commission at any time. Applications must be made to the Commission for a licence to import paper.

Then follow a series of conditions which are to be observed by licensed importers. Importers shall, if required, supply such paper and the paper made from such materials to any persons whom they supplied with paper in the standard year to the extent of two-thirds of the weight of paper supplied by them in the standard year. The Commissioners have power to refuse to supply any person who unreasonably refuses to supply his customer with two-thirds of the weight of paper supplied in the standard year.

With regard to contracts, it is provided that where on February 17, 1914, any person had a contract running for the supply of paper with a different person from the one from whom he obtained his supply in the standard year, the two parties to the present contract may, with

the consent of the Commissioners, continue such contract or arrangement subject to the reduction required by these regulations.

The Commission have also power to deal with the question of an unreasonable price being demanded.

Where the Commission are satisfied that the total sales of a daily, weekly, or monthly paper or periodical during 1915 exceeded the total sales during 1914 by more than 10 per cent., and the proprietor has not got and cannot otherwise obtain a sufficient amount of paper to enable him to supply the increased demand, although the weight of the copies of the paper has been substantially reduced, the Commission may sanction the importation of an additional quantity of paper and (or) paper-making material sufficient to provide for the increased sales which were in excess of an increase of 10 per cent., provided that all the papers or publications issued are substantially reduced in weight below the average of 1914.

Any licence which the Commission may issue will not override but will be subject to the granting of a Board of Trade licence in the case of any importation of paper or paper-making material from Belgium.

#### HOW IT AFFECTS OURSELVES.

The effect as regards ourselves is that already a very heavy increase of price on the last rise in January has followed, bringing prices to within a fraction of double the cost in 1914 just previous to the war.

Concurrently we have to limit our output to two-thirds of the quantity we were using then. The only three courses open to us are—to increase the selling price of the paper, to diminish the number of pages, or to reduce the weight of the paper per ream. The last course seems the least objectionable, and that we shall pursue as soon as our present limited stocks of paper are exhausted, asking the indulgence of readers and advertisers alike till the present scarcity is over.

#### IMPORTATION OF FURNITURE WOODS AND STONE.

In connection with the Prohibition of Import (Paper, Tobacco, Furniture Woods, and Stones) Proclamation, 1916, the President of the Board of Trade has appointed the following Committee to grant licences in special circumstances for the importation of furniture woods, hard woods, and veneers, and of stones and slates:—

Mr. J. H. Bovill (Chairman),  
Mr. George Burt, J.P.,  
Colonel G. T. V. Cobbett.

Mr. J. H. Phillips, of the Board of Trade, will act as Secretary to the Committee, and all communications relating to the importation of furniture woods, hard woods, and veneers, and of stones and slates should be addressed to him at Gwydyr House, Whitehall.

Importers of goods of these descriptions who may have cargoes at present en route for the United Kingdom are invited to make early application for licences, with a view to avoiding any unnecessary delay in clearing the goods on arrival.

A picture house is about to be built in Wales Street, Aberdeen, from plans by Messrs. Sutherland and George, Crown Street, Aberdeen.

Alterations are about to be carried out to the Gloucester Hotel, Weymouth, from plans by Messrs. Crickmay and Sons, of St. Mary's Street, of that town.

The death is announced of Mr. C. A. Hayes, of Bristol, principal of the firm of C. A. Hayes and Sons, builders, and an alderman and ex-Lord Mayor of Bristol.

Alterations and improvements are about to be executed in Upper Langfield Church, Drumquinn, from plans by Messrs. R. E. Buchanan and Co., architects, of Castle Street, London-derry.

The housing problem at Coventry is as far off solution as ever, and with the demolition of much house property for extensions to factories, empty tenements are at a premium. With thousands of young men and girls introduced to the city's trades, lodgings are almost unobtainable. In one case it is stated that in a three-bedroom house nineteen people, whose ages vary from two years to sixty years, are sleeping. In many houses the beds are never empty, being occupied by persons on day and night shifts.

## Currente Calamo.

The question whether the provisions of Part III. of the Finance (No. 2) Act, 1915, which deal with Excess Profits Duty, apply to profits derived from the sale of home-grown timber, is one of interest to every land agent, and is also one upon which many enquiries have been directed to the President of the Board of Agriculture. It will be remembered that this Act not only imposed the Excess Profits Duty, but made income-tax payable under Schedule B in respect of the full annual value, instead of on one-third that amount, as was previously the case; and in order to meet the case of those whose profits on their woodlands were less than the full annual value, Sec. 22 (4) laid down that:—

(4) Any person occupying woodlands, who proves to the satisfaction of the general Commissioners that those woodlands are managed by him on a commercial basis and with a view to the realisation of profits, may elect to be charged to income-tax in respect of those woodlands under Schedule D instead of under Schedule B, in the same manner as a person occupying lands for the purpose of husbandry only, and section eighteen of the Customs and Inland Revenue Act, 1887, shall apply accordingly, subject as follows:

(a) Any such election shall extend to all woodlands so managed on the same estate; and

(b) The election shall have effect, not only as respects the year of assessment mentioned in that section, but also as respects all future years of assessment so long as the woodlands are occupied by the person making the election.

The Surveyors' Institution reminds its members that it therefore becomes incumbent on the land-agent to advise his employer whether to exercise his option to be assessed under Schedule D instead of under Schedule B, and the possibility of liability to Excess Profits Duty becomes a factor in the question.

The Council are officially informed that the President of the Board of Agriculture "has been in communication with the Chancellor of the Exchequer on the subject of Excess Profits Duty on timber, and that Mr. McKenna has authorised him to state that even if the provisions of the Finance Act (No. 2), 1915, which deal with Excess Profits Duty, apply to the profits derived by land-owners from the sale of their timber" (on this point no opinion appears to be offered, the Surveyors' Institution notes). "It is agreed that in the case of 'commercial' woodlands, assessed to income-tax under Schedule B, the profits for the purpose of Excess Profits Duty shall be taken to be the amount assessable under that Schedule. In the case of woodlands which are not run on 'commercial' lines, there would be no trade or business, and the question of Excess Profits Duty would, therefore, not arise. The effect is that landowners who at the present time are willing to meet the national demand for timber by largely increasing their felling and sale of timber can continue to be assessed for income-tax under Schedule B on an annual value, and run no practical risk of liability for Excess Profits Duty." Were they to be assessed under Schedule D their risk of liability to that tax would seem likely to be increased. In considering the advantages or disadvantages of Schedule B as against Schedule D, members should not lose sight of the provisions of the Rating Act, 1874, so far as they affect woodlands. The principles which should govern the assessment of woodlands there laid down were dealt with at the time in a circular issued by the Local Government Board to Union Assessment Committees, and on April 18, 1910, that department issued a further important circular again drawing attention to this matter. Members are recommended to make themselves acquainted with the latter, which may be obtained from the Local Government Board, and which calls the attention

of assessment committees to the considerations which should guide them in arriving at the rateable value of woodlands. If these principles are followed, and assessments made on the natural and unimproved site, the rate or tax, even on the full annual value, would not as a rule be found to be burdensome.

The final report of the Government Committee on Public Expenditure makes sweeping recommendations for effecting economies in the Civil Service. A minimum eight hours' day is proposed for all civil servants, so effecting a saving on the amount of overtime, the numbers and salaries of higher officials in many Government Departments is to be reduced, and the minimum age of school children to be five and possibly six. The committee consider that the standard of public building construction should be revised, and the responsibility for all public buildings should be concentrated in H.M. Office of Works. The latter has recently introduced a revised specification for all lesser grades of buildings, which will reduce the cost by 10 per cent., and this is being steadily extended to buildings of larger size. They hold that the reports of certifying surgeons on accidents in factories, which cost £12,500 and are of little value, should be dispensed with. The Light Railways Commission had, the Committee state, in 1914 to deal with only nine applications. Of these only four were for new construction, and in respect of these orders were made for the construction of one and a half miles of new railway. These labours, the Committee point out, do not justify the expenditure of nearly £4,000 a year on the salaries of Commissioners and their staff. As for the National Insurance scheme, it should be possible to devise a scheme which would safeguard national interests and sentiments without the retention of so many as twenty-one commissioners, with salaries totalling £24,600 a year. A special inquiry should be held into the cost of the Insurance Commissioners' staffs, particularly in the case of the Welsh and Irish Commissioners, and with a view to the simplification of the Act generally.

Mr. A. Harry Heron, an architect, of 16, Great Marlborough Street, W., in a letter to the *Daily Telegraph*, takes up the question of "repairing leases," which usually call for redecoration on the outside every third or fifth year. He says, in these strenuous times, it may be useful to examine the position of those who have covenanted to repair under a lease; it is not a happy one, in view of the great increase in the cost of labour and materials. As an architect of over thirty years' experience he has seen some development in the building and decorating trades, and now that there is great improvement in the quality of much of this work he cannot see the necessity from the landlord's point of view of insisting upon internal painting and decorating "every seventh year," as is so commonly imposed upon the long-suffering leaseholder. Good enamel paint will wear and look well for ten years or even longer, and paperhangings are improving in quality, and, especially where electric lighting is adopted, do not require to be renewed so often. The old legal clauses in leases should be revised in view of this modern condition of things. Mr. Heron considers that so much internal painting and decorating is not conducive to the true maintenance of the structure, and it ought to satisfy landlords if the house is put into decorative repair within the last two or three years of the tenancy.



only. Outside painting or structural repairs, of course, should be done as necessary. There is good ground for much that Mr. Heron says—particularly with regard to interiors where the electric light has superseded gas. Not only is there less dirt, but paint and paper suffer less, and the best specimens of both will easily last the time stated above; and this encourages most lessors to have both of the best quality, and so avoid the more frequent disturbance of their business by unnecessary cleaning and redecoration.

We regret to learn that by a vote of seven votes to four the Arts Committee of the Liverpool Corporation decided last Friday to abandon until after the war the autumn exhibition of art, which has now been held without a break for over forty years. The reason given was the probability of financial loss. The decision has to come before the City Council for ratification, and will then probably be vigorously opposed. Last year a similar resolution was passed by the Arts Committee, but when the matter came before the council the difficulty was bridged over by the generous offer of an anonymous citizen to defray the whole costs of the exhibition and leave the total proceeds to be devoted to the Red Cross funds. This was done, with the result that the funds benefited to the extent of £1,130. We trust some similar kindly intervention may have a like result, and prevent the necessity, which is more apparent to the Corporation Arts Committee, we fancy, than to the citizens of Liverpool generally.

Town planners, building societies, and building owners and builders interested will note the dismissal by the Master of the Rolls and Lords Justices Phillimore and Warrington of the appeal against Mr. Justice Neville's decision of an action brought by a shirt and collar dressing company and their builder to restrain a building society which bought the Beckenham Park Estate and let it out in plots, stipulating among other conditions that no factory should be erected at a less distance than 60 ft. from the boundary line. This condition, it was alleged, was disregarded by the defendants, who contended, however, that it was not a manufactory in the sense intended by the vendors, and evidence was given that there was no noise to be heard and no vibration noticeable outside the building. Mr. Justice Neville found that a building scheme was intended, and that the building in question was a "factory" within the meaning of the covenant. He granted the injunction, with costs, but as the work the defendants were doing was a useful one, he stayed the operation of the injunction until three months after the declaration of peace. The defendants appealed from this order. The Court held that Mr. Justice Neville came to a right decision, and the appeal was dismissed, with costs.

The *Times* gives, through a correspondent, some interesting particulars regarding the German cement industry, which are well worth noting in connection with our first article this week. Briefly, German Portland cement is not real Portland cement. Yet before the war it succeeded in invading several of our foreign markets. This invasion was not carried out without certain sacrifices. Long before the Kaiser threw down the gauntlet, the cement industry in Germany was in a very unsatisfactory condition, and was already threatened with serious troubles consequent upon over-pro-

duction. All sorts of characteristic Teutonic inducements were thrown out to foreign customers to take the surplus output, and possibly they might have succeeded to a larger extent but for British connections. Certain customers in far-off quarters of the globe insisted upon British cement and secured it, but all the same the competition was keen, and German makers even succeeded in sending cement into such important English centres of production as the Tyne and the Thames. The war, of course, has changed the position. Germany has lost her foreign markets, and many of her principal customers in other countries are erecting cement works to supply themselves. While Germany has thus lost so many important outlets, we are not likely to secure them if other customers make their own cement, and if the present rules as to export are rigidly enforced. There is at present a unique opportunity to push British cement, and possibly it may be well worth while to consider whether hitherto neglected constituents may not be utilised in its manufacture, or if some grades thereof which may answer the needs of customers abroad who have been used to German cutting prices.

## Correspondence.

### OLD BAILEY VENTILATION.

To the Editor of THE BUILDING NEWS.

SIR,—The remarks in your current issue relating to the defective ventilation at the Old Bailey are fully confirmed by the almost continuous complaints emanating from judges, counsel, jury, and the public ever since the new courts were first opened. If the mechanical ventilation in use is such a failure, why in the name of common sense is not some other and more effective method employed?

If this mode of ventilation has been discarded in schools and other buildings as inefficient, why is it continued in such an important building as the Old Bailey?

When judges have actually to stop criminal cases and adjourn the court owing to the bad ventilation it is certainly high time something was done, as such a discreditable state of matters is nothing short of a public scandal.

Even cross-ventilation from windows, with all its discomforts and drawbacks, would be preferable, and Mr. Justice Low is quite right when he describes the present ventilation as "disgraceful" and "abominable."—I am, etc., R. G. B.

London, February 25, 1916.

At the annual meeting of the Artists' General Benevolent Institution, held in London on Wednesday under the presidency of Sir Aston Webb, it was stated that the Queen's forecast with regard to the effect of the war on artists had been only too truly verified, and £9,289 had to be disbursed to applicants and annuitants, as against £6,633 in 1914.

The Town Hall Committee of the Manchester Corporation have appointed a sub-committee to consider the question of appointing a successor to the late Mr. Thomas de Courcy Meade as city surveyor. As expenditure on public work is now so much restricted, the feeling of the committee is that it will be best, for the present at any rate, not to fill the vacancy. There is a deputy city surveyor in the Engineering Department and another in the Surveying Department.

The Road Board have informed county authorities by circular that, in view of the desire of the Minister of Munitions to encourage the use of refined tar so as to maintain the supply of distillation products for high explosives, and also with a view to protect important roads from disintegration, the Board have been authorised by the Treasury to make new grants and loans, to an aggregate amount of £200,000, towards the work of surface tarring, pitch grouting, and tar macadam.

## OBITUARY.

The death of Sir George Laurence Gomme, F.R.S., who from 1900 until March of last year was clerk to the London County Council, occurred on the 24th inst., at his residence, The Mound, Long Crendon, Bucks, after a short illness. Born in Hammer-smith in 1853, the son of the late William Laurence Gomme, civil engineer and surveyor, he was educated at the City of London School. Having served a short time as assistant clerk to the Fulham Board of Works, with whom he remained until the staff of that body was absorbed by its successor, the London County Council. During his early years of work he made a close study of municipal origins and growth, and as early as 1879 he published his "Index of Municipal Offices," which was followed a few years later by "The Early Municipal History of London," "The Literature of Local Institutions," and "The Principles of Local Government," originally delivered as lectures at the London School of Economics. His ability and energy were early recognised, and in 1891 he was appointed statistical officer to the Council, in which capacity he was largely engaged in the preparation of evidence before various Royal Commissions on phases of London government. When Mr. J. C. Stewart, the present Public Trustee, resigned the clerkship to the Council in 1900, Mr. Gomme was appointed to succeed him. He held the post for fifteen years—a longer period than that served by his two predecessors put together, and it was with the utmost regret that the Council accepted his resignation. He was knighted in 1911.

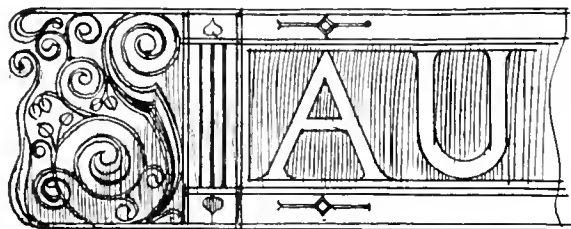
The death occurred on Tuesday in last week, at Fogleigh House, Box, of Mr. C. J. Pictor. Deceased, who was seventy-three years of age, was a member of the firm of Pictor and Sons, quarry owners, Box, one of the undertakings amalgamated with others later into one concern. For some time Mr. Pictor was chairman of the company. He had been in ill-health for several months.

Mr. Frederick W. Englefield, who has been for many years the clerk to the Painter Stainers' Company and secretary to the Incorporated Institute of British Decorators, died suddenly on Friday. A solicitor by profession, he had been associated with the guild for many years, and succeeded to a post which had been held by other members of his family. He was fifty-nine years of age. A verdict of death from natural causes was returned at the City Coroner's Court on Monday at an inquest on Mr. Englefield. On Thursday he attended a board meeting of directors of Sweetings, of which he was chairman, and was entering some figures on a paper when his head fell forward on the desk. He died on the way to hospital from heart disease. A memorial service was held yesterday (Tuesday) at Painters' Hall, and the interment followed at Norwood.

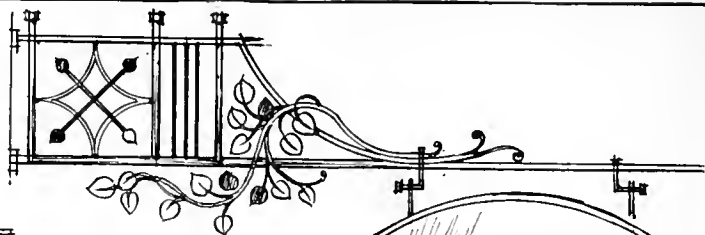
The death took place at Llandudno, on Tuesday, in his eighty-third year, of Mr. James McMaster. A Scotsman who settled in Manchester in his early days, Mr. McMaster became a builder, and quite early in life was in a position to retire. He was for very many years a member of the executive of the United Kingdom Alliance. He settled down at Llandudno on being appointed local agent to the Ecclesiastical Commissioners. Under his direction the West Shore estate belonging to the commissioners was laid out and developed, and he lived to see a remarkable boom in building on the estate, in the residential advantages of which he had great faith.

The funeral of Mr. John Chappell took place on Wednesday at Huyton Parish Church, near Liverpool. The deceased was principal of the firm of Messrs. John and George Chappell, building contractors, of Liverpool, a business which was established in 1820. He had retired after being in business nearly fifty years, and was one of the oldest residents of Walton. He took no interest in politics or public life, and died at the age of seventy-six years at his residence, Vewdale, Huyton, having survived his wife by about two years.

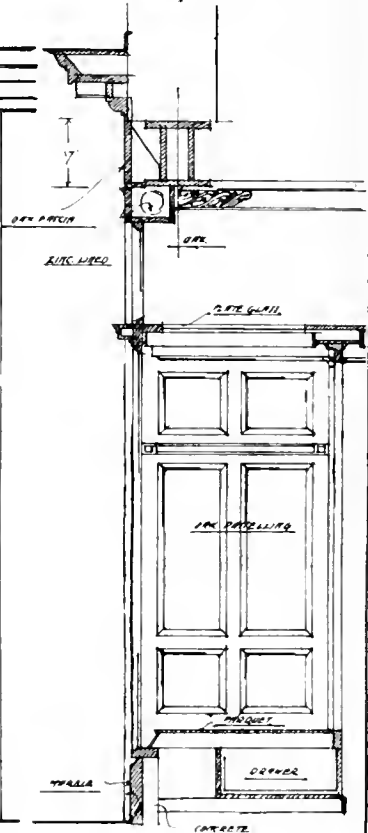
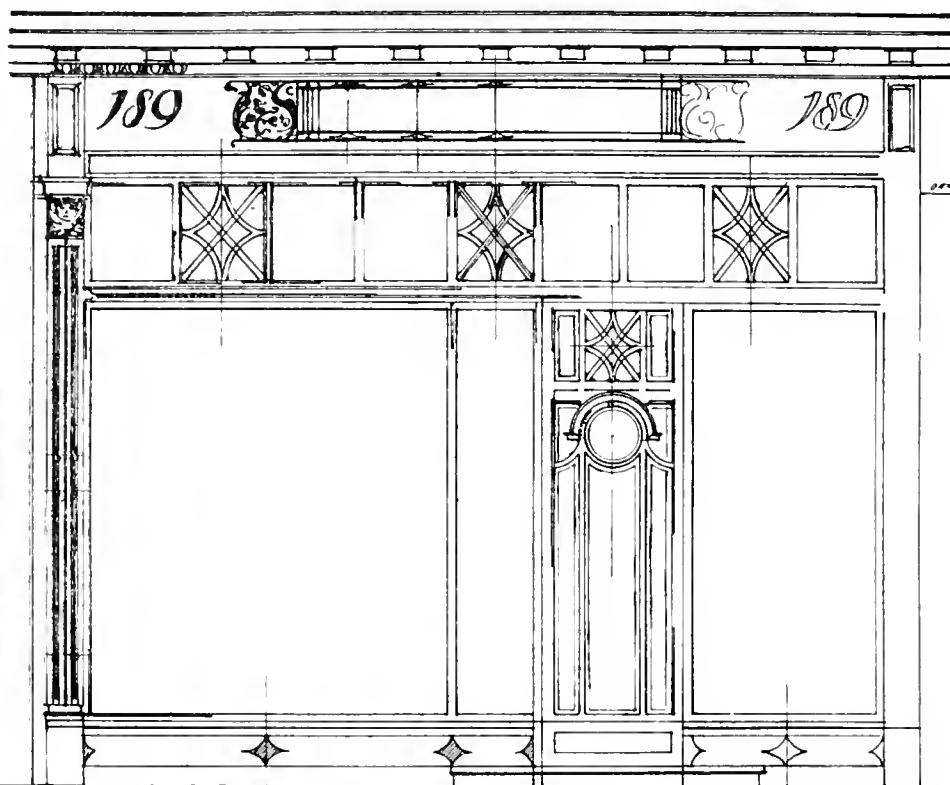
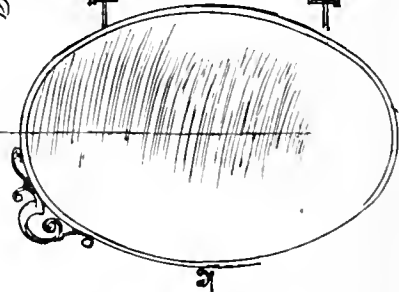
SHOP FRONT  
189. STRAND. W.C.



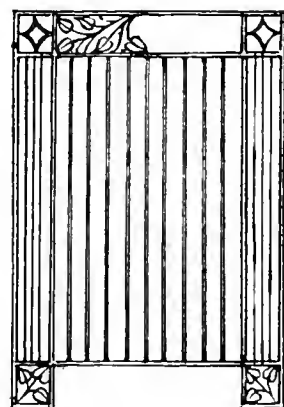
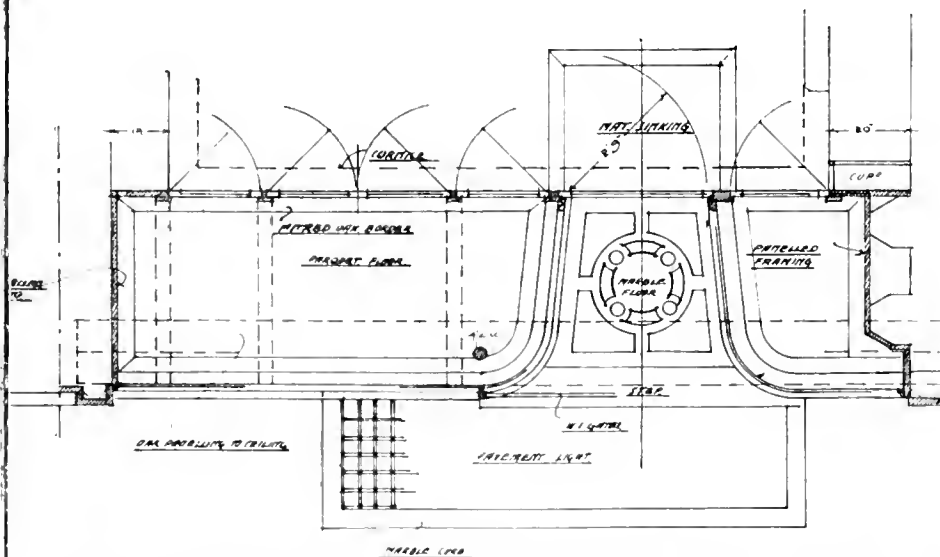
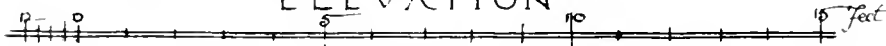
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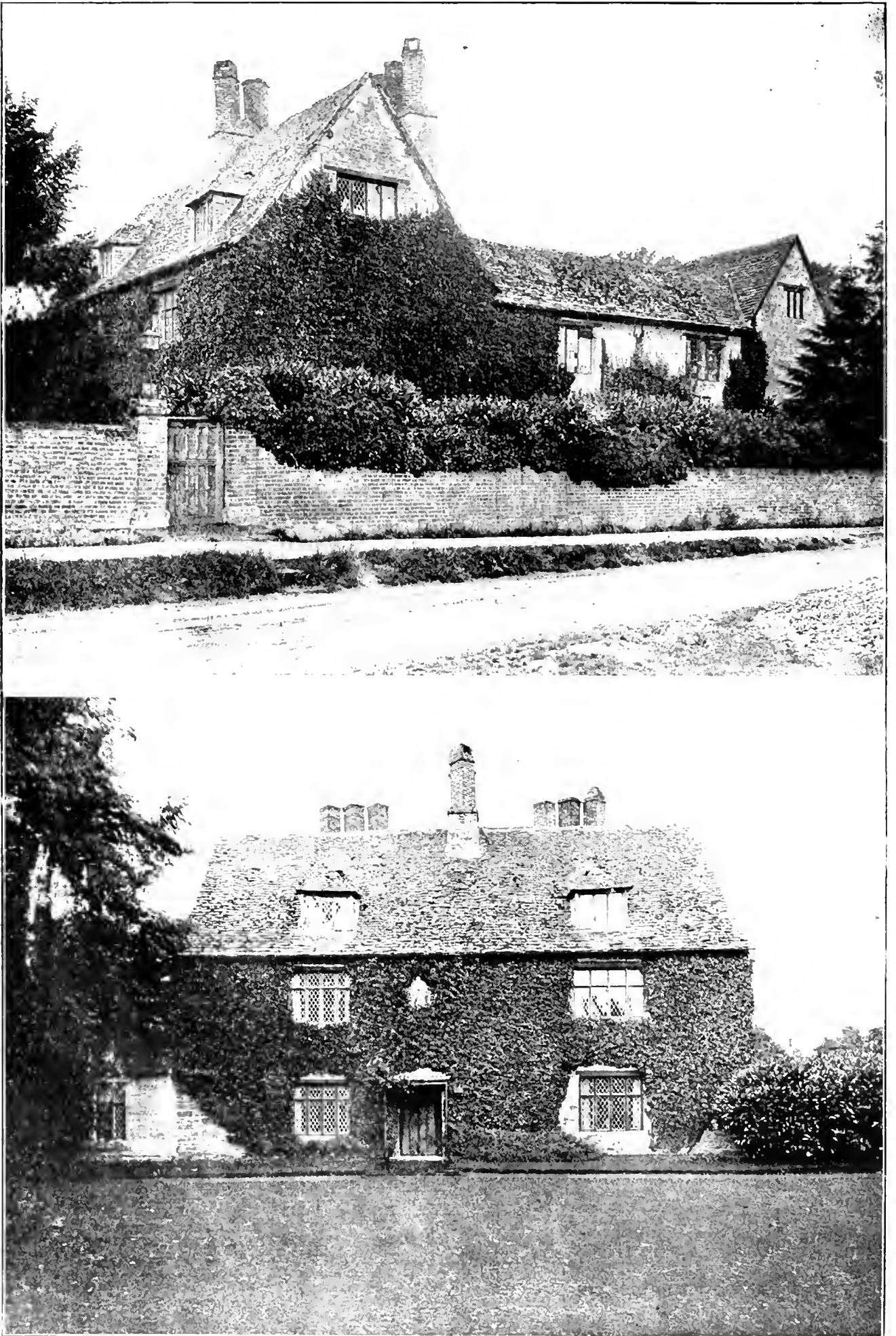
ELEVATION



PAY GRILLE

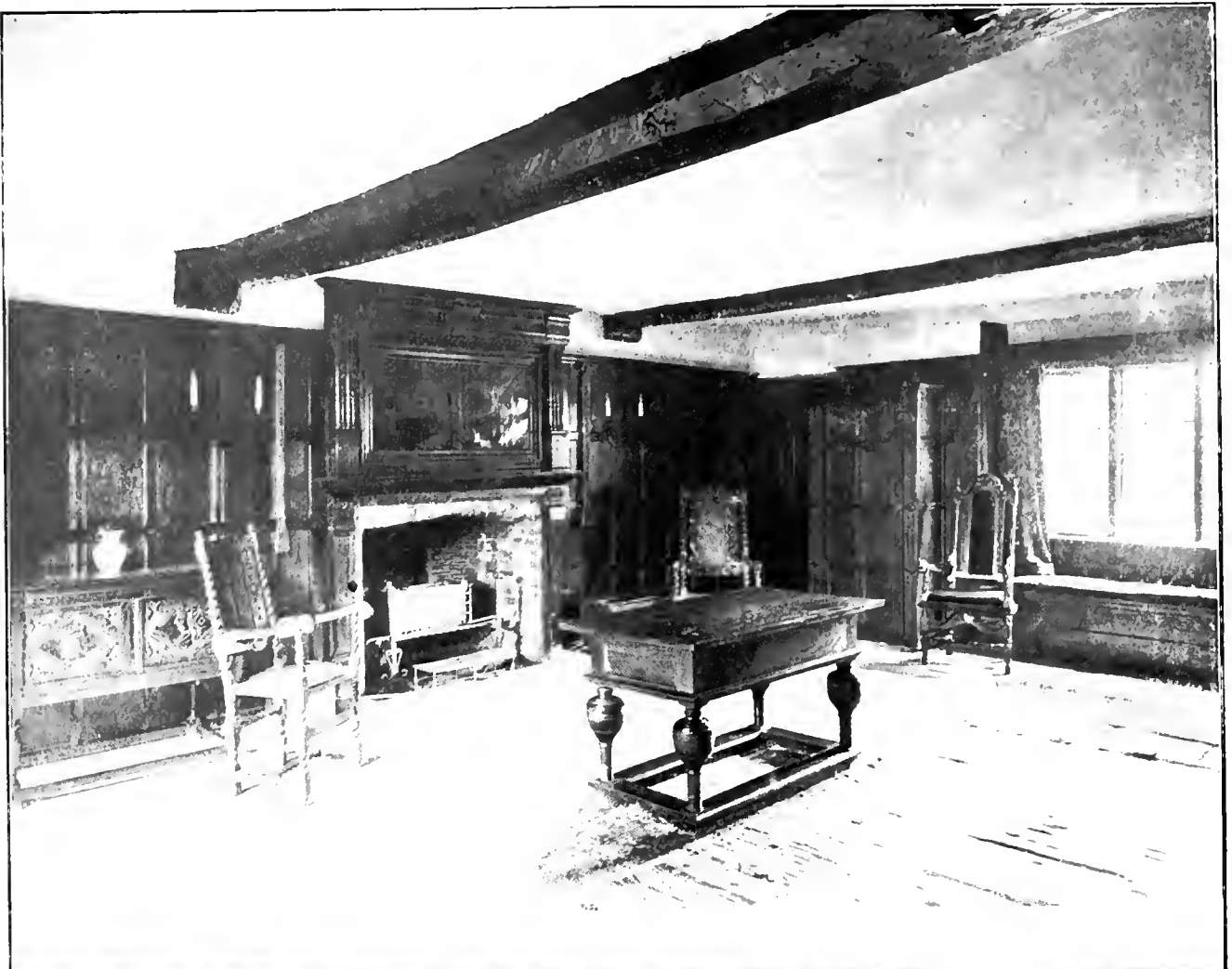




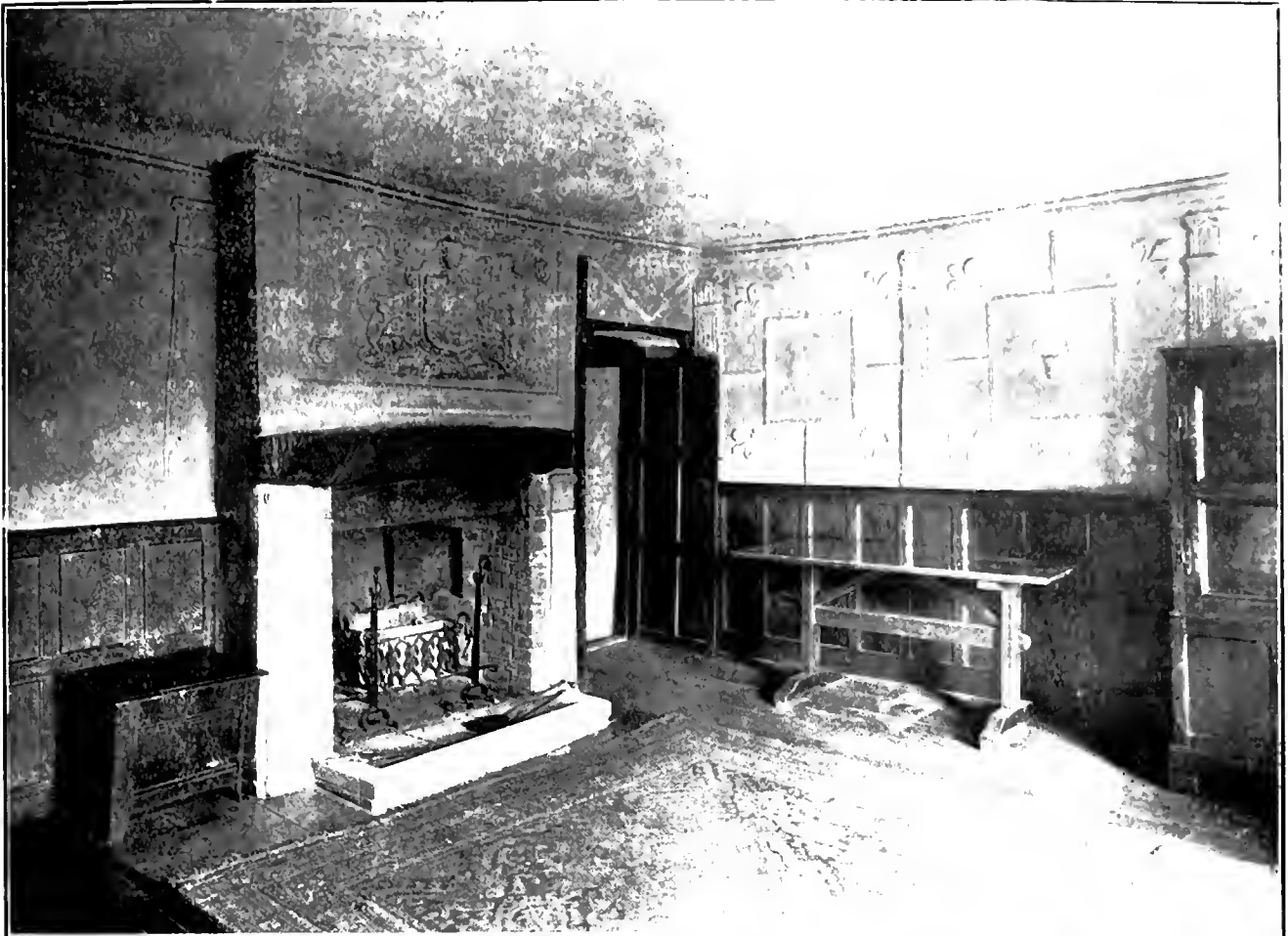


FRONT TO ROAD, AND GARDEN, WROUGHTON MANOR HOUSE, NEAR SWINDON.





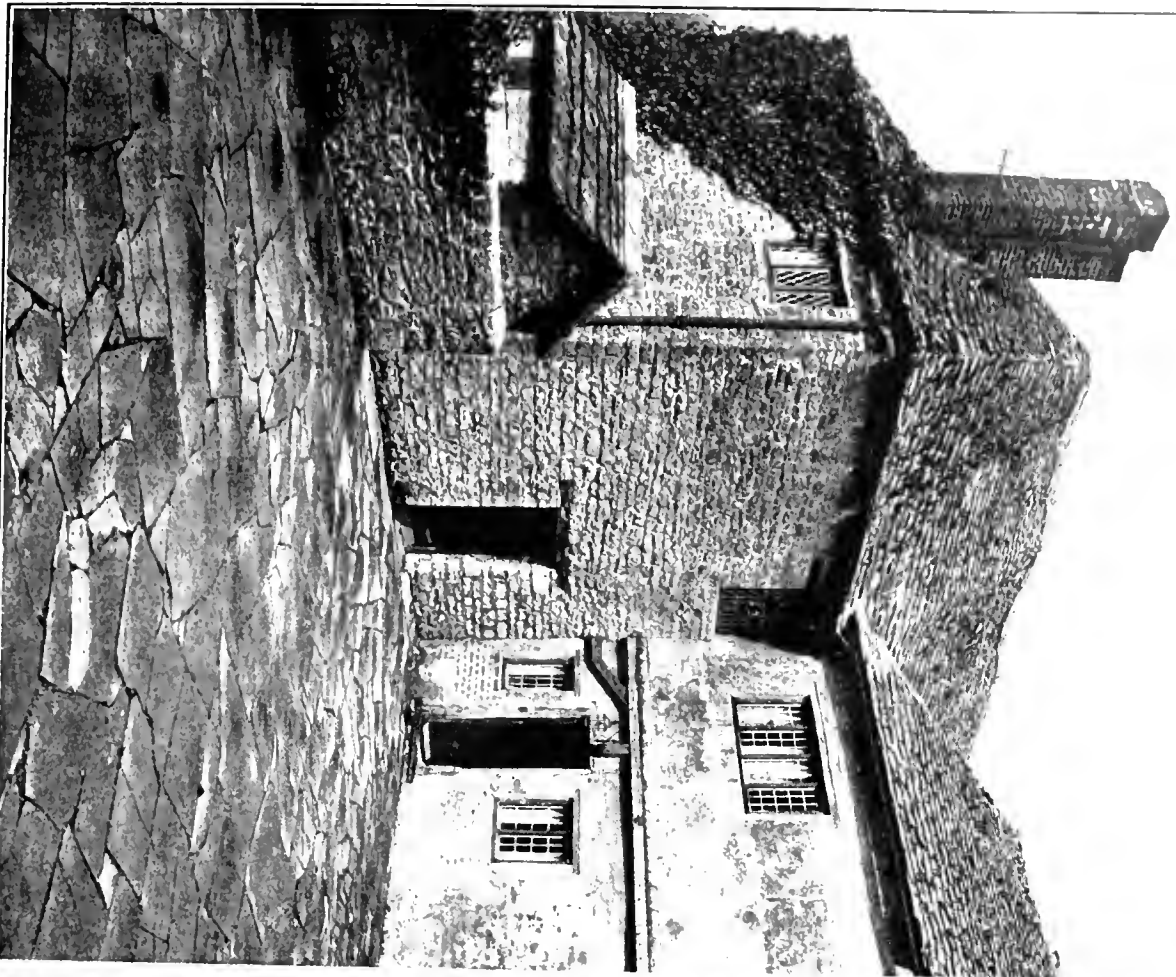
DINING ROOM AND HALL. WROUGHTON MANOR HOUSE, NEAR SWINDON.



BEDROOMS, WROUGHTON MANOR HOUSE, NEAR SALINDON.

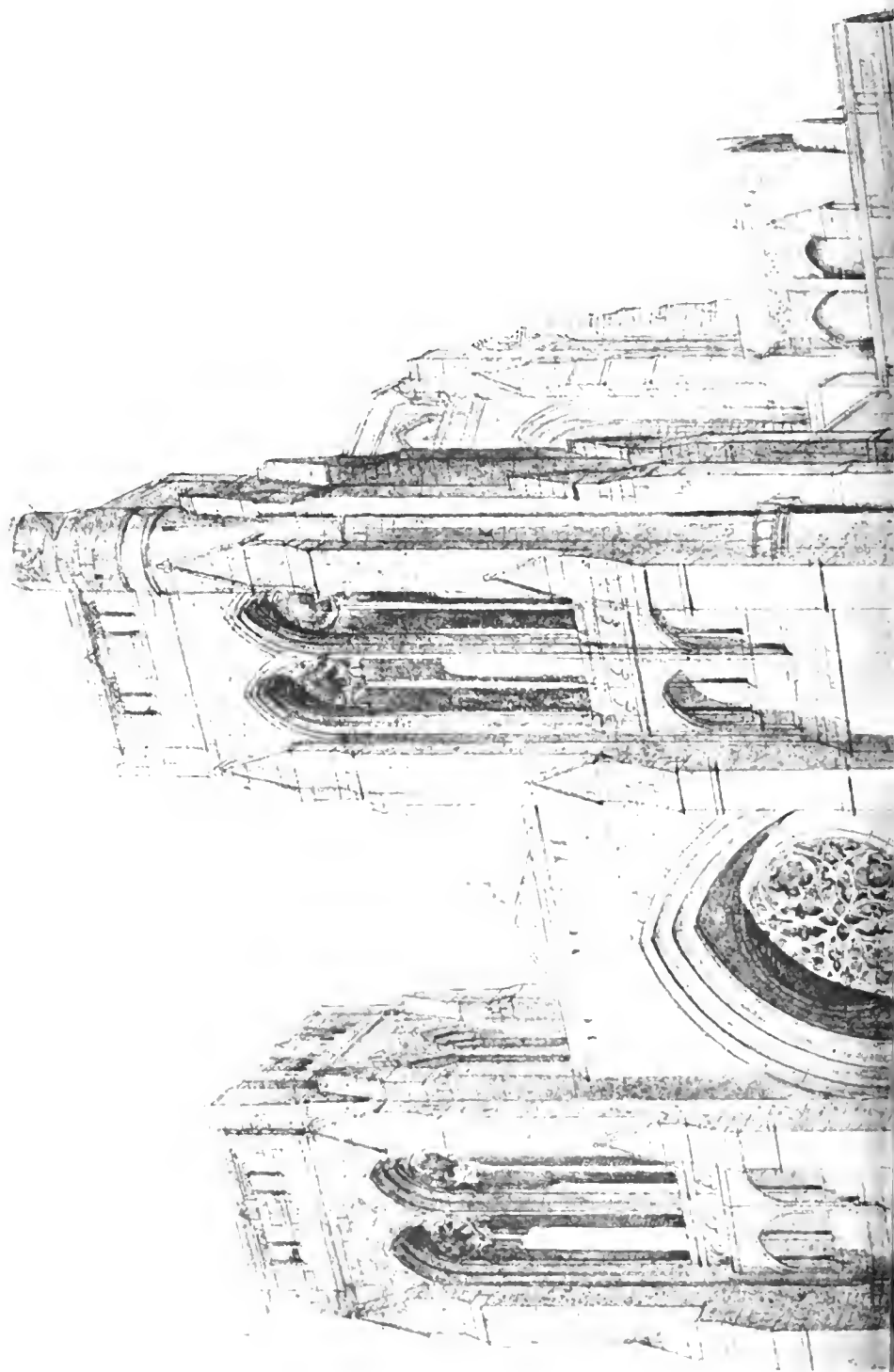


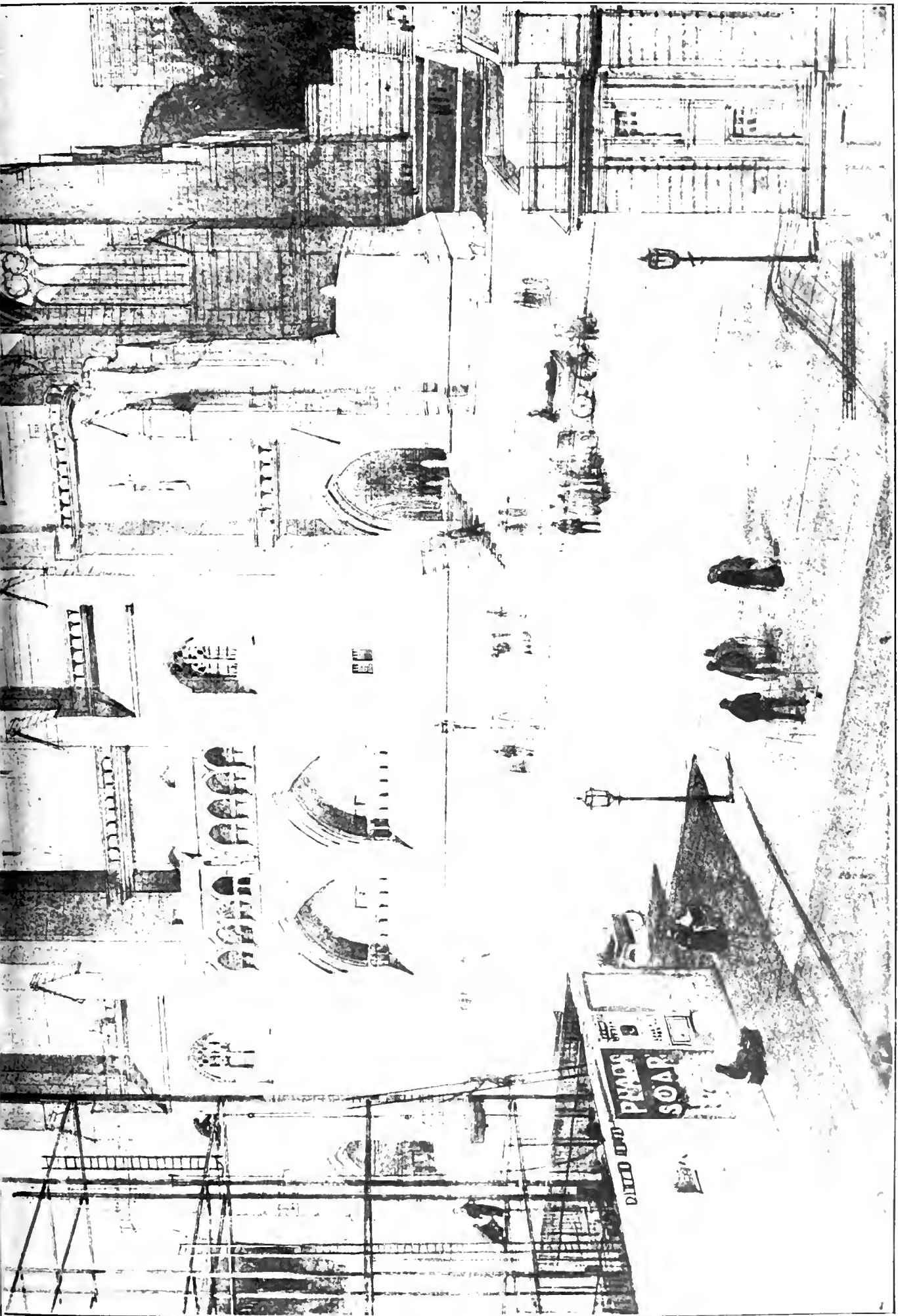




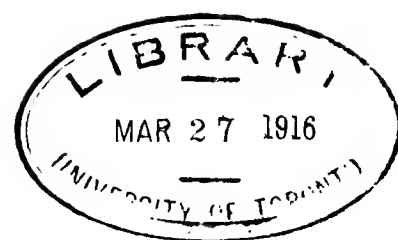








THE NEW CATHEDRAL, SAN FRANCISCO, UNITED STATES OF AMERICA. MR. C. G. H. A. V.

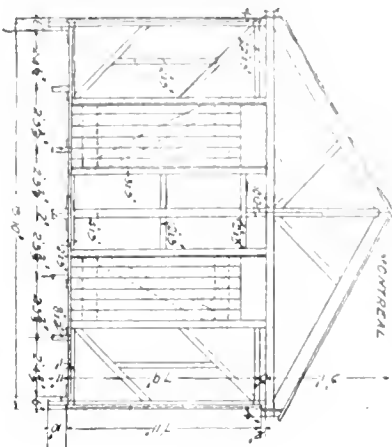




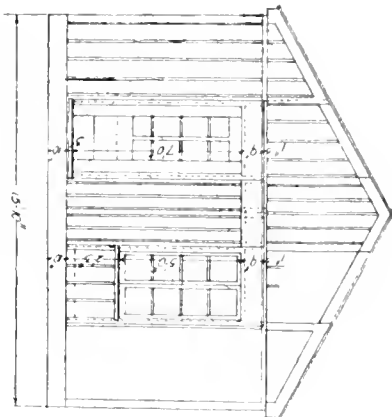
# PORTABLE HOUSES

JEAN C. LADELE  
MONTREAL

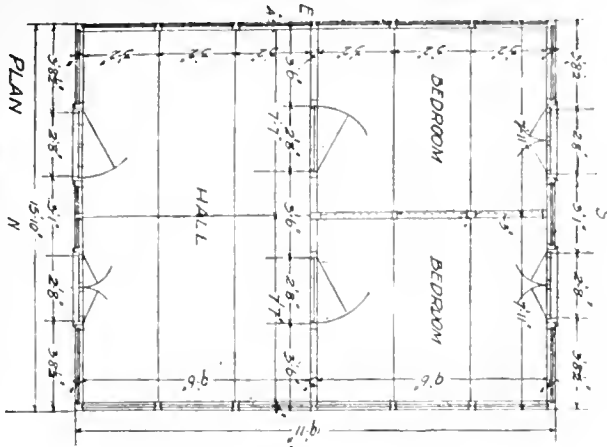
ARCHITECTS



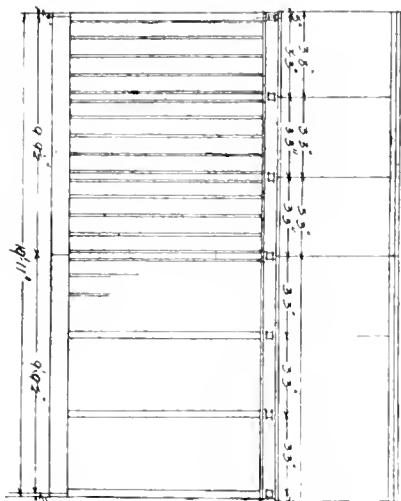
SECTION



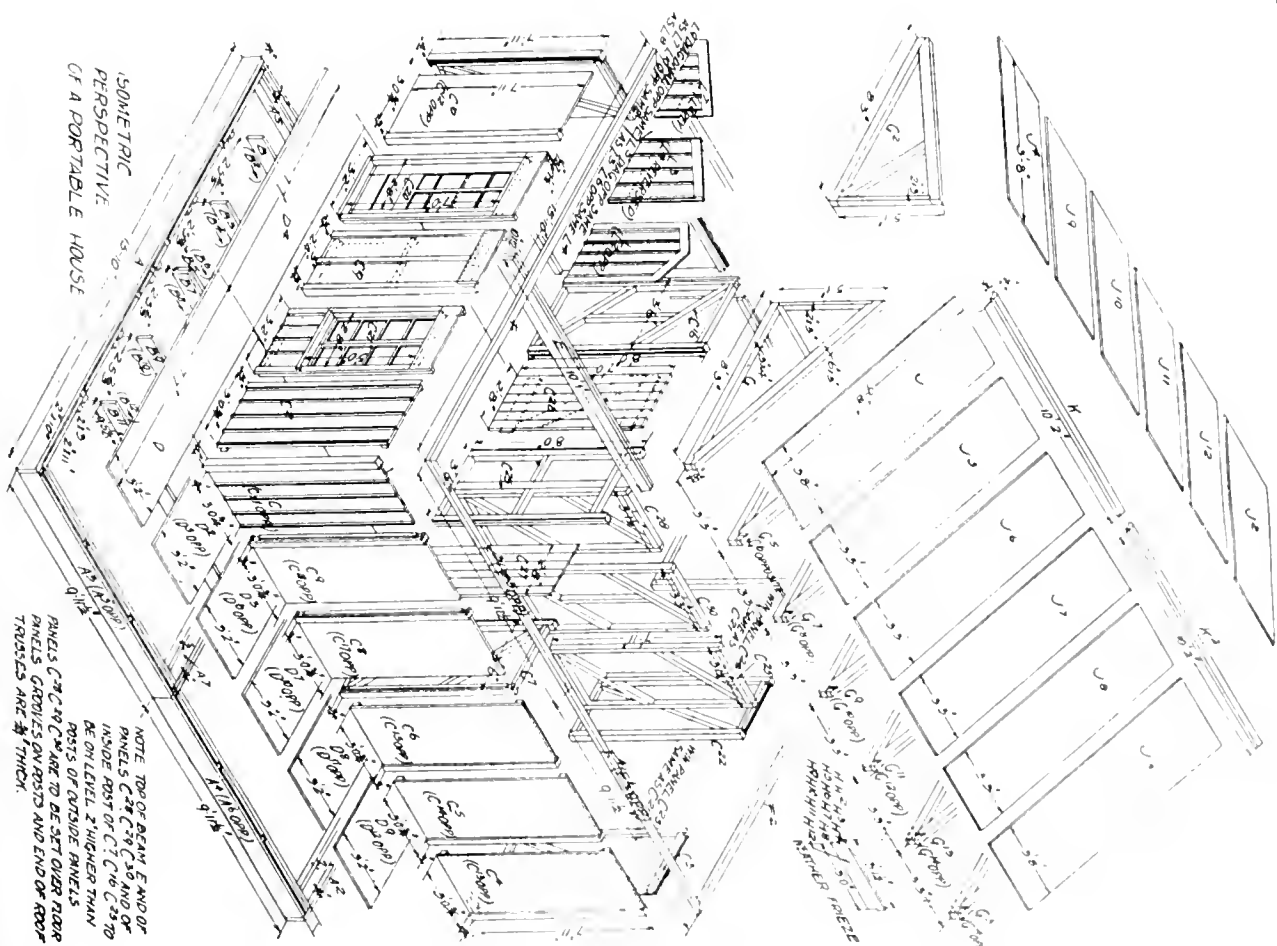
ELEVATION IN  
ELEVATION S IS SIMILAR BUT FOR  
A WINDOW INSTEAD OF THE DOOR



PLAN



ELEVATIONS E AND W



ISOMETRIC  
PERSPECTIVE.  
OF A PORTABLE HOUSE

Suggested plans of Portable House for Proposed Gift from Ontario Lumbermen to France

Isometric perspective of Portable House planned for presentation to France.

PORTABLE GIFT HOUSES FROM CANADA FOR FRANCE AND BELGIUM.

## Our Illustrations.

### THE NEW CATHEDRAL, SAN FRANCISCO.

The plan of this cathedral, which we illustrate to-day, has a large central octagon which, as desired by the committee, is very spacious, giving a fine area for ample seating, with an uninterrupted view of the high altar. The nave and chancel and also the north and south aisles are wider, while the outer aisles originally proposed have been superseded. Aisles are added to the north and south transepts, and, being carried out beyond the main wall, terminate in porches. The choir is divided from the octagon by a handsome stone screen with a small choir organ over it. On the north side of the sanctuary are two chapels. On the south side the choir aisle leads directly to the vestries and sacristies. The high altar is well raised above the nave, and on either side are doorways leading to the sacristies. The vestries are on a level with the choir aisle, while the choir vestries are on a level with the crypt chapel, and connected by a stairway, which is approached from the cloisters. The baptistery is located at the west end under the organ gallery. There are no west doors, but porches on the north and south are approached by a flight of steps. The crypt is entered from first flight of steps, immediately under the main entrance. Cloak-rooms have also been arranged on this level. The lighting of the whole interior is designed to have a striking effect, the nave being lit from the large aisle windows, as there is no clerestory. The octagon is lit by tall traceried windows on the four angles or shorter sides, and it rises above the level of the top of the triforium. An east window of considerable dimensions lights the choir and sanctuary, and is placed high up in the building. A rich carved stone reredos, with sculptured figures and elaborate canopy work, occupies the wall space below. The lofty arcade is surmounted by a rich traceried triforium, which runs the whole length of the building, and continues round the octagon. The great organ is placed in the west gallery, the small choir organ being on the stone screen under the chancel arch. The octagon is the dominating feature of the cathedral, and great dignity of effect is ensured by the grouping of the nave and subsidiary parts, greatly helped by the projection of the aisles of the transepts. The general treatment of the west front has been kept severe, its imposing effect relying on the large surfaces of plain wall and bold towers, the porches of the towers serving as important features in the grouping. Stone ashlar will be used inside and out. The paving in the nave and aisles is specified to be of stone, and the choir and sanctuary of marble. The seating accommodation is for 2,062, the octagon providing for 550. The main dimensions are:—Width of nave, 40 ft., total width is 86 ft., the width of octagon being 72 ft.; the total length of the interior is 250 ft.; the height of octagon from crypt to parapet 178 ft.; height of ridge of barrel vault to nave floor, 100 ft.; and the tower height from crypt level is 164 ft. Mr. Cecil G. Hare (Bodley and Hare) is the architect, and the drawing now reproduced was shown at the Royal Academy last year. The original design by the same architects will be found in our issue for July 31, 1908, when a plan appeared which has been generally adhered to, though this final design differs materially, as will be seen by comparing the view given to-day with the previous perspectives. We shall publish an interior view shortly.

### WROUGHTON MANOR HOUSE, NEAR SWINDON.

This beautiful old manor house, of which we illustrate fronts to the road, garden, and several interiors, is situated in the village of Wroughton, not far from Swindon. The house is built of local stone, with mullioned windows, the roof being tiled with stone tiles, all of which has weathered a charming colour. It is placed amongst some fine old matured timber, and has a capital garden and grounds of 6½ acres, with the usual typical outbuild-

ings. The hall is 24 ft. by 22 ft., being panelled in oak, with ante-room adjoining 15 ft. by 10 ft. The dining-room is also oak-panelled to the ceiling, which is oak-beamed. This room is 23 ft. by 16 ft. The drawing-room is 19 ft. by 19 ft., also oak-panelled. The bedrooms, of which there are nine, are also of much interest, the largest of which is 30 ft. by 15 ft. 6 in., lighted by four mullioned windows, the walls having an oak dado, with old plaster work above, consisting of panels divided by pilasters. A carved stone panel (a coat of arms) surmounts the chimney-piece, adding much to the general character of the apartment. On the second floor are two good guests' bedrooms, 24 ft. by 21 ft. and 21 ft. by 21 ft. respectively. The house contains much old furniture, quite in keeping with its general character. Other views show the old timbered roof in one of the bedrooms, another a corner of the courtyard. The property is for sale by Messrs. Knight, Frank, and Rutley, of Hanover Square, W., to whom we are indebted for the loan of the photographs from which our reproductions are made.

### PORTABLE GIFT HOUSES FOR FRANCE AND BELGIUM FROM CANADA.

The following is a brief description of the plans of a wooden portable house, fifty of which the Canadian Timber Products Association propose donating to the devastated portions of France and Belgium. The figures show the plan, elevations, and an isometric perspective of the design chosen. The houses are built of lumber, using a roofing material such as tar paper, asphalted paper, or ready roofing, with an interior trim, if desired, of Beaver board. The structure is 15 ft. 10 in. by 19 ft. 11 in. plan dimensions, approximately 14 ft. high, contains three rooms, with a uniform height of story of 8 ft., and has three windows and a door. The front room, or hall, is 9 ft. 6 in. by 15 ft. 5 in., while the other two rooms, which may be used as bedrooms, are both 7 ft. 7 in. by 9 ft. 6 in. inside dimensions. The front elevation contains a door and a window, and the rear elevation is similar but for a window in place of the door. Both side elevations are of similar design, each being built of six 3 ft. 3 in. panels grooved ready to fit one another and to receive the top and bottom rails. The floor is made of 1-in. tongued and grooved boards, dressed on the wearing surface, laid in six sections each 3 ft. 2 in. wide, nailed to five 2 by 8 in. joists. These joists rest on 2 by 3 in. blocks nailed to a base girt composed of a 2 by 10 in. plank 15 ft. 10 in. long, spiked to a 2 by 11 in. plank, which is notched to receive the up-rights. The roof is built in two halves; each half is made of a 3 by 4 in. tie-beam framed and notched to the main rafter and to the 2 by 3 in. half-kingpost. The rafters are made of 3 by 6 in. material framed to the tie-beam and half-kingpost. The roof, similar to the sides, is put on in panels the same width as the side panels, made of 1-in. tongued boards nailed to cross-pieces. The door is 7 ft. by 1 in. by 2 ft. 9 in., built of 1½-in. material with one flush panel, and prepared to receive eight panes of glass. The three windows are 5 ft. by 2 ft., made of 1½-in. material with two sashes prepared to receive four panes of glass. A detailed bill of quantities of the material necessary for this portable house has been drawn up. It is proposed to have the makers mark each piece with a distinct sign or letter, tie all similar pieces together, for the sake of order and method in shipping, and to secure thorough, easy, and rapid assembling by inexperienced hands. It is roughly estimated that these houses may be produced at an actual cost of \$150.00.—*Contract Record*.

### SHOP FRONT, No. 189, STRAND, W.C.

Our illustration shows one of the branch shops of Messrs. Austen Reed, Limited, who pursue a wise policy in having their premises well designed and fitted. The material used is chiefly oak, with wrought-iron, an important feature. The contract for these premises was carried out by Messrs. Hibberd Brothers, Limited. Mr. P. J. Westwood, A.R.I.B.A., of Adam Street, Adelphi, is the architect.

## Building Intelligence.

**ALDERMANBURY, E.C.**—In the narrow part of the tortuous old thoroughfare known as Aldermanbury, that between the church of St. Mary and the opening into Addie Street, an opportunity for widening the street from 19 ft. to 50 ft., afforded by the falling in of the leases of Nos. 60, 61, 62, and 63, has recently been availed of by the Corporation. On the reduced site left after the improvement new premises are about to be erected from plans by Mr. T. H. Smith, 17, Basinghall Street, E.C. They will be six stories in height, the ground floor being arranged for occupation by a branch bank. The upper floors will constitute offices or warehouses for the textile trades, and there is a large open space in the rear over the one-story buildings of the properties in Addie Street. The premises will be faced with Portland stone.

**BATH.**—The Royal suite of the corporation hot mineral baths, which have been reconstructed from plans and under the supervision of Mr. R. J. Taylor, of Bath, were formally inaugurated by Viscount French of Ypres on Wednesday. Over the new entrance a canopy has been set up to shelter invalids going into or leaving the establishment. Powerful girders had to be introduced to carry the floors of the hotel above, and a room which projected into the space had to be cut away. The hall will be used as a lounge entrance. The ground floor of No. 15, Bath Street, entered from the lounge, will be used as the mechano-therapy department. The corridor, the bathrooms, and dressing-rooms have been paved throughout with black and white tiles, and the walls have been lined with Rust's glass mosaic. A new feature of the heating system is the presence of hot-water radiators in all the dressing-rooms. The calorifiers are supplied with steam from the boilers in Swallow Street. All the dressing-rooms have windows and outlet ventilators in addition to top lights. There are two dressing-rooms to most baths and three to certain baths; but for two deep baths, where the patients are immersed for a considerable time, only one dressing-room each is provided. The other deep bath has two dressing-rooms. For the three reclining baths there are five dressing-rooms. For radiant-heat treatment there are two baths. The whole of the visible casings to pipes have been abolished and a sub-way constructed to carry the pipes, which are now easily accessible for repairs. Two separate lavatory blocks have been constructed. A new system of electric bells has been established. The bell rings when the patient pulls a cord, and in the corridor an indicator drops and an electric lamp glows, the indicator remaining down and the lamp glowing until the attendant enters the room indicated and pulls another cord, which closes the indicator and extinguishes the light, thus showing that the call has been answered. The general contractors for the reconstruction were Messrs. Jacob Lang and Sons, of Bath.

**DURHAM.**—Partly erected on the site of the old premises at the south-west corner of the Market Place, Messrs. Lloyds' new bank at Durham was thrown open for business on Thursday last. The front elevation is executed in stone from the Windy Nook quarry, above a base of polished granite, and the rear in deep red pressed brick. A large banking hall occupies the ground floor, with suites of offices at the rear, while the whole of the first and part of the second floor have been arranged in apartments. The residential part of the old bank has been converted into chambers, many of which have already been let. Mr. Wm. Hall, of the Derwent Joinery Works, Gateshead, has carried out the work, with the assistance of several sub-contractors, and under the supervision of Mr. J. G. Burrell, Lic. R.I.B.A., architect, of Durham, from whose designs we illustrated the bank in our issue of January 5 last.

**WEST HAM.**—Near Prince Regent's Lane, 204 cottages have been built by the Port of London Authority in their rehousing operations, due to the extension of the Royal Albert

Docks. The buildings are tiled-roofed, and are arranged in small blocks. Each cottage has a garden at the rear, and there is a small front garden, except where the house faces one of the grass-covered open spaces. The forecourts are paved, back and front. All the roads on the estate are 40 ft. in width. Of the total number of houses, 50 are three-roomed, with scullery, 121 four-roomed, and 30 five-roomed. Rents, inclusive of rates and taxes, are 6s. 6d., 8s. 6d., and 12s. per week for the respective types. Each house is provided with a bath, copper, cooking range, gas lighting, and indoor lavatory. Wardrobe cupboards are supplied to each bedroom, and there are meat safes, with outside ventilation, on the ground floor. The new buildings are within easy walking distance of the Victoria and Albert Docks, and trams pass the estate. They are also adjacent to the Beckton Road Recreation Ground and near schools and a free library.

### COMPETITIONS.

**ROYAL MANCHESTER INSTITUTION.**—The governors of the Royal Manchester Institution are offering a prize of £10 and the Heywood Silver Medal for the best picture of "Early Morning." This competition is open to any artist living within a radius of ten miles from Manchester, or who has received his or her art training in Manchester, and must be the bona-fide work of the exhibitor. The picture may be in oil, water colour, or pastel, and of any size or shape. It must have been painted during the year before October, 1916, and must not have been exhibited in Manchester. All exhibits, suitably framed, to be delivered at the City Art Gallery on or before October 1, 1916, and be labelled Royal Manchester Institution, "Early Morning," together with the name and address of the artist. An artist may send in one or more pictures, but each must be capable of bearing the title of the competition. The picture will remain the property of the artist. Inquiries may be addressed to Mr. Charles E. Marshall, assistant secretary, 38, Barton Arcade, Manchester.

### PARLIAMENTARY NOTES.

**THE CHARING CROSS BRIDGE.**—The Bill of the South-Eastern and London, Chatham, and Dover Railway Companies for power to strengthen Charing Cross Bridge was passed on Wednesday by the examiners of the House of Lords for second reading and Committee stages. The Bill will be opposed in Committee by the London County Council, the Port of London Authority, the Gas Light and Coke Company, and lightermen and bargemen of the Port of London; and a letter of protest, on the ground that instead of granting powers for strengthening the present unsightly structure, Parliament should anticipate its replacement by a broad bridge and thoroughfare from Trafalgar Square to South London, has just been published, signed by Mr. Ernest Newton, A.R.A., P.R.I.B.A., and by Sir Aston Webb, President of the London Society. The estimated cost of the work is £167,000.

**THE COUNTY COUNCIL HALL.**—Mr. King asked on Thursday what was the sum expended to date upon the new London County Council Hall buildings, and whether the Government intended to permit further work to be done on the edifice? Mr. Montagu: The figure asked for is not readily available. All further work on the edifice has been suspended by the direction of the Minister of Munitions.

An inquiry was held at the Town Hall, Huntingdon, on Tuesday in last week, by Mr. P. M. Crosthwaite, Local Government Board inspector, into the proposal of the Town Council to erect a refuse destructor near the G.N.R. station. Mr. J. P. Maule, Town Clerk, said the application was for a loan of £1,800 for the erection of a refuse destructor, as they had had great trouble in finding tipping places for the town refuse. At the present time they had received an intimation that they might have to give up the present tip, and they did not know where they could find another. Mr. O. W. Gillson, borough surveyor, said at present it cost £230 a year to deal with the refuse, and he believed the erection of a destructor would mean a saving of £100 a year. The inspector remarked that the Board would not sanction a loan at this time unless they were convinced that it was an absolute necessity.

### LEGAL INTELLIGENCE.

**INACTIVITY IN THE BUILDING TRADE AT RUGBY.**—A meeting of the creditors of Arthur C. F. Picken, builder, Hilmorton Paddock, was held on the 22nd inst. at Coventry. The gross liabilities were £2,130, and the deficiency was returned at £1,793. "Loss on contracts and loss on speculative building owing to increased prices of labour and materials," were alleged by the debtor as the causes of failure. On the subject of the state of building at Rugby, the Official Receiver expressed the view that the estate would not benefit by the sale of the plots of land on which debtor had paid deposits. Mr. Reddish (debtor's solicitor) said there was not a single building plan before the last meeting of the urban district council, and there was no new building going on in Rugby. A committee of inspection, with Mr. E. F. Peirson as trustee, was appointed.

**IS "OGEE" AN AVAILABLE TRADE MARK?**—Before the Master of the Rolls, Lord Justice Phillimore, and Lord Justice Warrington, in the Court of Appeal, on Friday, the Registrar of Trade Marks appealed from a judgment of Mr. Justice Sargant in the Chancery Division. The judge had reversed the registrar's order which refused to allow Mr. Thomas William Garratt, who trades as Osborne, Garratt, and Co., hairdressers' sundriesman, of 11, Temple Street, Birmingham, and London, to register in Class 50 the word "Ogee" in relation to his trade. The application is of little interest to our readers, the point in dispute being as to whether, as the Solicitor-General, Sir George Cave, argues, "Ogee" could be registered as a trade mark, being the initials of the appellant's firm, or was it, as Mr. A. J. Walton, K.C., contended, an ordinary dictionary word used in connection with architecture. The Solicitor-General said on July 22 the registrar refused to proceed with the registration of the word as a distinctive mark. Mr. Garratt appealed to Mr. Justice Sargant, who, in his judgment, said he thought the word "Ogee," *prima facie* meant the word as used in architecture, and that the registrar was wrong in holding that letters could not be used as distinctive marks. Holding that the registrar had misdirected himself, his lordship directed him to proceed with the registration. Lord Justice Phillimore thought the rule was that a trade mark must be distinctive as regarded both sound and appearance. Mr. Walton, K.C., said there was no such rule. All that had to be done in considering whether a mark was calculated to deceive was that you might look at previous marks, and you must not register a word which had the same meaning as a symbol or register a symbol which had the same meaning as a word. The Court said they would consider their judgment.

**LITIGATION OVER AN ESTATE COMPETITION.**—Mr. Justice Younger, sitting in the Chancery Division, dismissed on Thursday afternoon in last week the motions by 140 winners of freehold plots on the New Anzac-on-Sea estate, between Brighton and Newhaven, to restrain Mr. Charles William Neville, trading as the South Coast Land and Resort Company, from parting with the three guineas each they sent him as the cost of conveyance, pending the hearing of the actions they are bringing to repudiate the gifts. In his judgment Mr. Justice Younger said the grievances of the plaintiffs were that they were told that there would be fifty consolation prizes given in the competition relating to the selection of a name for the estate, and that three guineas was required to cover the cost of conveyance, which would be a smaller sum than would be normally chargeable. They alleged that they had been induced to pay their three guineas by fraudulent misrepresentation, and on that ground they sought to recover their money. These were matters which would require the most careful inquiry at the trial, and the explanations given by the defendant would have to be most carefully sifted. For the purposes of these motions, however, his Lordship confined himself to the question of urgency, upon which point he could not take the same view as that put forward for the plaintiffs. In his opinion it would be difficult for the defendant to justify his statements as to the cost of conveyance, but on the point of agency the motions could not succeed. In the circumstances he would reserve the costs. Other questions would have to be dealt with at the trial, and he was prepared to offer facilities for the fixing of an early date. Mr. Clanson, K.C., stated that owing to the *ex parte* injunction Mr. Neville's cheques had been returned dishonoured, and his Lordship said he would reserve the inquiry as to the damage he had suffered.

Tate Gallery, Millbank, will be closed to the public on and after to-day (Wednesday).

### PROFESSIONAL AND TRADE SOCIETIES.

**AN IRISH BOSS IN AN ESSEX VILLAGE CHURCH.**—At the meeting on Thursday night of the Society of Antiquaries, held at Burlington House, Sir Hercules Read presiding, a gilded bronze boss of Irish work, c. 750, which was found at Steeple Bumpstead, Essex, was exhibited by permission of the vicar, the Rev. W. F. D. de Langdale. Sir W. St. John Hope explained that the boss was formerly fixed on the back of the vestry door of Steeple Bumpstead Church, and the vicar had stated that his predecessor had discovered it in an old chest in the vestry, but originally, it was believed, it had come from the east end of the church where a vault was being made. Mr. Reginald Smith, in a series of notes, illustrated by lantern slides, said that the boss, while not a masterpiece, belonged to that period of Irish art, the eighth century, when masterpieces were common. It might probably have belonged to a shrine such as was frequently met with in the Christian period in Ireland, when the devout collected and enshrined the bells and walking-sticks of their saints. He compared it with other examples of Irish art, such as the foot of the Ardagh chalice and the Tara brooch, and suggested that its presence at Steeple Bumpstead could probably be accounted for by its being a piece of Viking loot.

**ARCHITECTURAL ASSOCIATION OF IRELAND.**—The exhibition of work by members of the Architectural Association of Ireland at their rooms at 15, South Frederick Lane, Dublin, is an interesting one. Mr. G. G. Lynes contributes some water-colour studies of sea and sky effects in Dublin Bay, and Mr. L. F. Giron some cloud effects, apparently also secured in Dublin Bay, and a clean, bright cliff scene. Mr. A. G. C. Millar, in group No. 32, has an excellent picture of a beach, which conveys effectively the general brightness of the sea border and a sense of holiday-making by the ocean. His landscape, No. 26, and estuary scene, No. 38, must also be noted. The group of fishing-boats and gear on a sandy spit, No. 25, and the farm, with its surroundings, depicted in No. 29, are sound pieces of work, especially the latter, by Mr. M. J. Burke. The quiet atmosphere of "God's Acre" is well portrayed in No. 30 by Mr. F. G. Hicks. Pinstaking work is evident in three pictures of old Irish buildings by Mr. C. G. McDowell. Not least striking, both in its broad effect and in careful detail, is No. 48, showing the west doorway of Clonfert Cathedral, one of the finest Romanesque cathedrals, and No. 51, an unfinished study of Cormac's Chapel, Cashel, by the same artist, who also shows three excellent book illustrations in black-and-white. Mr. R. Caulfield Orpen, R.I.A., has some good still-life studies. Interesting and excellent sketches made by Professor W. A. Scott in Belgium are items not to be missed, while the pen-and-ink sketches by Mr. E. Bradbury and the caricatures by Mr. J. Holloway will repay attention. Some creditable photographs are shown by Mr. H. G. Leask, President of the Association, chiefly well-composed scenes in Co. Wicklow; they are full of depth without being overworked.

**A ROMAN ROAD IN SCOTLAND.**—Dr. George Macdonald, C.B., in an additional Munro Lecture, delivered in the History Classroom, Edinburgh University, on the 22nd ult., dealt with "Scotland during the Roman Period." Analysing the inscriptions found at Newstead the lecturer pointed out that these were relatively few in number, and that the information they conveyed was correspondingly meagre. They gave us the names of certain individual members of the garrison, but told us little except that the Twentieth Legion had done building work here, as at Carchedi. So far as could be judged, the inscriptions in question all belonged to the second century. Attention was next drawn to the difficulty of tracing the exact course of Dere Street in its further progress northwards. Apparently it crossed the Tyne at once, and made its way up the valley of the Leader towards the Lammings. At Charncliffe, the Rev. Mr. Allan has traced the remains of an ancient road through the parish, and has proved



CHIPS.

A new Wesleyan chapel at Crowland, built at a cost of 4,300, was formally opened last week.

A new hotel is to be built at Peas Lake, Surrey, from plans by Mr. A. C. Houston, A.R.I.B.A., of High Holborn, W.C.

The death is announced of Mr. J. Spavin, who for eighteen years was surveyor to the Brunby and Frodingham Urban District Council.

The place of Mr. A. W. Lupton, assistant surveyor to the Knaresborough Rural District Council, who has been called up for service, has been filled by his sister.

The late Mr. George Bertram Bulmer, F.R.I.B.A., of Tewitt Well Avenue, Harrogate, and a member of the firm of Messrs. Perkin and Bulmer, architects, Leeds, left £6,582.

The Local Government Board have recommended the Treasury to grant a loan of £1,300 to the district council of Athlone for the provision of a new cemetery at Clonown, near that town.

A large branch building for the Young Men's Christian Association is about to be built at Tilbury from plans by Mr. Rankin, Y.M.C.A. Works Department, Bloomsbury Square, W.C.

The Pontypandy Building Company are about to build forty houses and construct new roads at Pontypandy, near Caerphilly. The architect is Mr. W. Dawdeswell, 72, Bute Street, Cardiff.

Arrangements have been completed for the purchase by Messrs. Pease and Partners, Ltd., Darlington, of the works and undertaking of the Teesbridge Iron Company, Ltd., of Stockton-on-Tees.

The corporation of Dublin have under consideration proposals by the city architect for building houses on the North Lotts and New-foundland Street areas, at estimated costs of £134,294 and £85,467 respectively.

The corporation of Ipswich have received from the Local Government Board permission to borrow £5,100 for the coal-handling plant now in course of erection at the electric generating station, Constantine Road.

The opening ceremony took place recently of the Ashludio Sanatorium, Monthieth, built and equipped by the Dundee Town Council at a cost of £24,000. The institution has accommodation for sixty-four cases of incipient consumption.

It is announced from Ottawa that architects who have examined the Parliament Buildings have reported to the Government that the exterior walls have suffered little damage, and that interior construction will only be necessary.

Mr. Thomas Parker, J.P., M.I.C.E., M.I.E.E., M.I.M.E., of Severn House, Ironbridge, Salop, the engineer who designed the Liverpool Overhead Railway, who died on December 5, aged 71, has left estate valued at £13,360 gross, with net personality £6,096.

The partnership hitherto subsisting between H. F. Blachford and A. W. Blachford, surveyors, architects, auctioneers, valuers, house and estate agents, at the Estate Office, Cross Roads, Southbourne-on-Sea, Bournemouth, under the style of Blachford Brothers, has been dissolved.

At Beaumaris, a picturesque building dated 1416, and used of late as a lock-up ironmonger's shop, was destroyed by fire on Saturday. The premises, which had walls 5 ft. 6 ins. in thickness, was well known as being lined throughout with fine old oak paneling; this unfortunately proved fuel for the flames.

The annual meeting of the Carnegie United Kingdom Fund Trustees was held at Dunfermline on Saturday. Dr. John Ross, the chairman, said that after £600,000 had been spent by Mr. Carnegie and the Trustees in church organs it was felt they might reasonably terminate such grants. Meantime the Trustees were considering the expediency of founding a school of music on a scale analogous to the celebrated schools on the Continent and particularly in countries at present closed to British students. The sum of £4,000 to the Women's Industrial Council towards the cost of building a nursery training school, £10,000 towards erecting an aquarium at the Scottish Zoological Gardens, £12,000 for the National Library for the Blind, and £2,000 for the acquisition of the Solon Ceramic Library, which is to be handed over to the School of Science and Technology at Stoke-on-Trent.

TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Effingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

Drawings of selected competition designs, important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc., we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

Telephone: Gerrard 1291.

Telegrams: "Timeserver, Estrand, London."

NOTICE.

Bound copies of Vol. CIX. are now ready, and should be ordered early, price 12s. each, by post 12s. 10d., as only a limited number are done up. A few bound volumes of Vols. XXXIX, XL, XLV, XLVI, XLVII, XLVIII, XLIX, L, LI, LII, LIII, LIV, LV, LVI, LVII, LVIII, LIX, LX, LXI, LXII, LXIII, LXIV, LXV, LXVI, LXVII, LXVIII, LXIX, LXX, LXXI, LXXII, LXXIII, LXXIV, LXXV, LXXVI, LXXVII, LXXVIII, LXXIX, LXXX, LXXXI, LXXXII, LXXXIII, LXXXIV, LXXXV, LXXXVI, LXXXVII, LXXXVIII, LXXXIX, XC, XCI, XCII, XCIII, XCIV, XCV, XCVI, XCVII, XCVIII, XCIX, C, CI, CII, CIII, CIV, CV, CVI, CVII, and CVIII may still be obtained at the same price, all the other bound volumes are out of print.

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RECEIVED: R. F. W. ...  
S. H. P. ...  
R. S. P. ...  
S. H. P. ...

A. G. F. Yes.  
G. H. S. Please send.  
L. F. Yes, if possible, send.

KIRD.—That is the long short of it, I am afraid. Probably it will be a long time before it is done.

STICK.—We know nothing of it, but it is a pity. We saw the specification of a part of the other day, 21st October 1914, and it proposed to reinforce the bridge with iron plates, and for skirting boards, etc. It may be worth your while to look up at the Patent Office.

TO ALL AND SUNDRY.—To prevent disappointment owing to restricted and later postal deliveries, it is not safe to wait till Tuesday morning to send us advertisements for the current week's issue. Many reach us after 4 p.m. at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order the BUILDING NEWS regularly of their newscaster or bookseller. With the present shortage of paper and postage still further risen in its price, it is futile to expect a newscaster to saddle himself or us with surplus stock except to oblige chance customers, of which moreover he or we have to pay heavy increasing carriage charges.

TO ARMS!

4TH BATTALION CENTRAL LONDON VOLUNTEER REGIMENT.  
ORDERS FOR THE WEEK ENDING MARCH 4, 1916.

OFFICER FOR THE WEEK.—Platoon Commander J. R. G. Williamson.

SENT FOR DUTY.—Platoon Commander A. Gerard.

APPOINTMENTS.—Company Commander F. J. Castle to be Officer in Charge of Physical Exercises. Platoon Commander W. J. A. Watkins to be Instructor of Musketry.

Platoon Sergeant W. H. Paton transferred for temporary duty to Special Company, Section B, Army Reserve.

Section Commander J. White to act as Platoon Sergeant No. 1 Platoon.

P. C. Owen to act as Section Commander No. 11 Section, No. 2 Company.

SCHOOL OF ARMS.—Thursday, February 29, 6.15 p.m.

LECTURES.—Thursday, March 2, 7.45-9.15 p.m. Instructional Parade, Co. Commander E. J. Castle.

DRILLS AND PARADES.—For details of Drills and Parades, see notice board at Headquarters.

ENTRECHING, PARADE.—Sunday, March 5, Victoria Station, 10.15 a.m. and 1.15 p.m. Instructional Parade, 5.15 a.m. for special training.

Also at Cannon Street Station, 10.15 a.m. and 1.15 p.m. for training. Uniform, haversacks, water bottles, and other requisites to be carried. Return to Victoria about 10.15 p.m. Refreshment vouchers will be provided.

By Order,  
MAURICE YEASLEY, Adjutant.  
February 24, 1916.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY.—To-day, 1st March, at 8 p.m., at the Victoria Theatre, 1, Victoria Street, London, W. 1, will be given a performance of the play "The Sign of the Cross" by the Victoria Theatre Company. Tickets 1s. and 2s. 6d. only.

THURSDAY.—To-morrow, 2nd March, at 8 p.m., at the Victoria Theatre, 1, Victoria Street, London, W. 1, will be given a performance of the play "The Sign of the Cross" by the Victoria Theatre Company. Tickets 1s. and 2s. 6d. only.

FRIDAY.—To-morrow, 3rd March, at 8 p.m., at the Victoria Theatre, 1, Victoria Street, London, W. 1, will be given a performance of the play "The Sign of the Cross" by the Victoria Theatre Company. Tickets 1s. and 2s. 6d. only.

SATURDAY.—To-morrow, 4th March, at 8 p.m., at the Victoria Theatre, 1, Victoria Street, London, W. 1, will be given a performance of the play "The Sign of the Cross" by the Victoria Theatre Company. Tickets 1s. and 2s. 6d. only.

SUNDAY.—To-morrow, 5th March, at 10.15 a.m. and 1.15 p.m., at the Victoria Theatre, 1, Victoria Street, London, W. 1, will be given a performance of the play "The Sign of the Cross" by the Victoria Theatre Company. Tickets 1s. and 2s. 6d. only.

MONDAY.—To-morrow, 6th March, at 8 p.m., at the Victoria Theatre, 1, Victoria Street, London, W. 1, will be given a performance of the play "The Sign of the Cross" by the Victoria Theatre Company. Tickets 1s. and 2s. 6d. only.

TUESDAY.—To-morrow, 7th March, at 8 p.m., at the Victoria Theatre, 1, Victoria Street, London, W. 1, will be given a performance of the play "The Sign of the Cross" by the Victoria Theatre Company. Tickets 1s. and 2s. 6d. only.

WEDNESDAY.—To-morrow, 8th March, at 8 p.m., at the Victoria Theatre, 1, Victoria Street, London, W. 1, will be given a performance of the play "The Sign of the Cross" by the Victoria Theatre Company. Tickets 1s. and 2s. 6d. only.







# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

Effingham House,

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The National Library of Wales, Aberystwyth, General view, with key plan, west elevation, and detail of west end of Library Hall. Mr. S. K. Greenhalgh, A.R.I.B.A., architect.	

## BRITISH OR FOREIGN?

Many influences are tending in a wholesome direction just now, and if they are not worked to death by the enthusiasts with their own little axes to grind, there is really more hope than there has been this thirty years past of our return to sanity in the more important and essential matters of daily life, and more particularly in regard to the three principal necessities of civilised human existence—food, clothing, and shelter. One wholesome lesson of the war—learned rather late perhaps—is the fast-spreading conviction that “economy” effected by the import of foreign rubbish to eat, to wear, or to build with is, for the most part, short-sighted extravagance. Another is that if we are to keep the German barbarians out of our home markets, and those of other nations where we expect to supersede the enemy, it must be by making and selling honest, useful things, and not the cheap superfluities which dissatisfy the buyer, demoralise his soul, and degrade the producer and vendor. The present enforced restriction of the imports of all such is timely and wise. We shall keep some money in our pockets that we badly need for present public and private necessities, and save a little wherewith presently to find honest, wholesome, paying work for the millions who are returning to a disturbed labour market that will take longer than some of us will live to see to shake down to normal conditions. However diplomacy may blunder, as it is pretty sure to do when the fighting is over, we trust that every man with a vote, whether he thinks himself a free-trader or a protectionist, will make up his mind that no Government shall be worth a day’s purchase in England that does not rigorously shut out the German and all his works for the next twenty-five years at least—simply as the most certain means of crippling any renewal of preparation for another *coup* of the sort that was launched upon Europe eighteen months since.

Of other industries it is hardly our province to speak, but in all that concerns our own great group—the second in the realm—we are sure every thinking reader will agree that if we are to keep the alien out and all his abominations, it can only be done by insisting that better things shall be produced by our own people, and resolving to pay fair prices for them, and to buy and use nothing for which real value is not given. During the last thirty years the inrush of

foreign-made joinery and furniture has been destructive enough. It has demoralised taste and taken the bread out of the mouths of thousands of our workmen. It has led to the attempt by native producers to compete with the foreigner by turning out still cheaper and worse things; and, by the sub-division of machine labour, to strip every article of the characteristics which the architect and the craftsman value, and for which in better times our forebears were willing to pay as an indispensable condition of their outlay.

For all this we are all alike to blame. Architect and client for permitting or demanding goods produced by foreign machine-made labour, and masters and workmen for confining their opposition to its introduction merely because it diminished profits and wages. The producer has been blind to the fact that the wearisome repetition of things of bad design, plastered over with tawdry ornament turned out by the yard, sooner or later flooded the market. The workman—apathetic, so long as his wages were increased in some proportion to the saving in time effected by the machine, has failed to realise that his chief asset—skill of handicraft—was fast being shouldered out of the labour market in competition with that of the “hands” who are mere machine-tenders, or mechanical units in the process of fitting together parts of a whole they take no pride in, and in the design of which they have had no part.

In our own trades this prostitution of principle to mistaken ideas of personal interest has been especially pernicious. Take joinery, for instance, in which all conceivable degrees of skill are required, from the production of high-class doors, windows, and staircases, down to the common labour of laying floors and the like. So it is with house decorations, and the same with masonry, brickwork, and plastering. In all these trades the really skilled workman has come to see the injustice of measuring the value of his work by that of the less skilled and the laggard. One result has been less pride in the work, and the gradual substitution for it of results which have been disastrous to all concerned. Equally, masters are alive to the folly of cutting down piecework prices as soon as a man makes more than at daywork price. Both sides are learning better in munition-making, where accuracy and efficiency are primary and indispensable requisites. Is it too much to hope that, presently, common-sense will define mutual interests, based on right principles, in other words, more satisfactorily to all concerned, and more conducive to the exaltation of purpose and

method which alone sweetens labour and transforms it into art?

That once brought about, we shall have taken a long step towards the achievement of the better education of the general public, which, after all, is the fundamental requisite. Long ago Emerson said, “Cheapest is the dearest labour. What we buy in a broom, a mat, a waggon, a knife is sane application of good sense to a common want.” The average Briton does not recognise this. In his house and in his surroundings fashion has been his guide, and the desire to get the best of the current phase thereof at the lowest price his chief aim. He knows little about and cares less for beauty and fitness in his furniture; all he stipulates for is that it shall be up to date. The result is that he gets, at the best, stock patterns copied by wholesale manufacturers from original designs, in which the spirit and detail of the original conception have been travestied into ludicrous imitation.

In the use of ordinary building materials and manufactures there is still too often lack of appreciative co-operation between the architect and the producer. Not seldom the assurance on the trade circular that “Architects’ designs are carried out” is a very vague one, and too often all the fault of failure is not on one side. One cannot expect architectural brickwork, or better joinery, if general drawings on a small scale alone are furnished, and the execution left entirely to the makers and builders or their foremen. On the other hand, where a really able architect, for an appreciative client, does design things of the sort, he is hardly encouraged to come again to the manufacturer who unloads inelegant and fussy replicas thereof on the market till even the ignorant are sick of things multiplied by the thousand, if only because they have become “common.” In the finishing trades, probably, the architect, during the past twenty years, has too often been responsible for the foisting of foreign rubbish upon us by his carelessness in the control of ironmongery, stained glass, ceramics, and wall-papers used in his buildings, the desecration, discouragement of the home craftsman, and a too visible return to the commonplace rubbish of mid-Victorian times. All these things and an others, such as bricks, floors, joinery and staircases, things, the best obtained with the best retained while architects are content to specify “the best” and “of approved” etc. It is and must remain one of our business to discourage inferior work of all kinds, and to foster every endeavour of the home manufacturer and worker to do better, or rigorously stipulating that

every article shall be of British make only.

More than a quarter of a century ago Sir Thomas G. Jackson, addressing a section of the Art Congress at Birmingham, uttered some wise words on which we commented at the time, emphasising the real scope and compass of an architect's responsibilities. "An architect's work," he said, "is the direction of a variety of handicrafts, to none of which he has himself been trained. The more necessary is it that he should know enough about them to be able, in the first place, to design his work so that it can be made coherent, and next to that it can be made without needless trouble and expense." That summarises the whole subject. Unfortunately, neither his own representative institutions nor those of the State have done much to encourage or direct him. One result has been that each separate branch of handicraft, even where pursued honestly, with a view to better things, has crystallised round a few set forms, and the specialist seldom thinks and works in any set groove but his own. The architect finds it difficult to get a workman capable of carrying out a design ever so little out of the common, and he himself is incapable of showing the craftsman how to do it. To meet these drawbacks we hope something will be devised in connection with the Arts and Crafts Exhibition it is said the Royal Academy proposes to arrange shortly. On the occasion above referred to Sir Aston Webb, who was too ill at the time to read it personally, sent a paper to the Birmingham Congress, in which he admirably postulated a possible time when the Academy student should have free and systematic access to the workshops where he would meet the carver, the modeller, the smith, the leadworker, the decorator, and the glassworker, and so gather a band of men about him, educated with him from his youth, and bound to him by ties somewhat similar to those that unite our public schools and the Universities of to-day, and, with them, would work out a building in all its details. If Sir Aston Webb has the opportunity, we shall watch with eager interest for signs of his influence on any attempt to realise his aspirations it is said the Royal Academy contemplates.

We venture to urge the topics we have discussed, because of our sincere conviction that we are on the eve of a profound and wholesale change in the conditions of life that affect Art. For a generation and more they have been unhealthy and hostile thereto. Politics have been degraded to the level of the self-seeking political placeman, whose evasive excuses for the imbecilities of himself and his tribe are only less nauseous than the rat-squeak of the demagogue whose pose of patriotism is a mere mask of his determination tooust the "ins" and emulate their self-seeking. Our faith has split itself into the varied but equally unsatisfying phases of sham revivals of outworn forms, of hysteria thinly veiled as enthusiasm, or of the worst form of superstition that seeks solace in mere witchcraft, or chills in the soulless negations of a barren philosophy. Our social life has rotted into the whirl and dissipation of the crowded restaurants of the West End, where the mad pranks are played which more than one recent case in the Law Courts has revealed. Our conscientiousness has collapsed into the cant of the coward who is sickening the local tribunals with his scruples about the fighting he is content to let his fellow-men do for him. Our trade and commerce has abandoned its old lawful pursuit of rendering good value for fair gain in its really-competitive scramble for the

places and profit of real pioneers. Out of the reeking swamp into which all these fouled streams of human life have oozed, how could Art flourish? How could it have been otherwise—with rare exceptions, than that the mad rush of the multitude in search of ignoble gain and degraded pleasure should reflect itself in the hurried spasmodic demand for the creation and completion of all artistic work?

We are paying the price for all this in blood and treasure. Let us be thankful for it. Glad that British endurance has so well responded to the call of those who at last woke the nation from its slumberous dreams of the peace when there was no peace, however shrilly its assured continuance was brayed into our ears by dozing or treacherous watchmen, while the enemy was at our gates. None are more bravely bearing themselves in this war of Titans than our own brethren and those of their kindred banner of Science. Neither they nor their comrades by millions are coming back presently to let us wallow on in the old sloughs and shams of life. There is dawning the revival of a bold, generous, disciplined, orderly life; and, as that broadens and develops into healthier political and social conditions, it will reflect itself in the work of our hands. "For the stone shall cry out of the wall, and the beam out of the timber shall answer it," once again in rejoicings at the victory of Use and Beauty over the prostitutes to the meretricious harlotries of Ostentation and Covetousness, of which the chief panders have been the aliens we have allowed to infect our Art, degrade our industries, and debase our social life.

#### THE GRAVELS OF EAST ANGLIA.

In a shilling pamphlet published at the Cambridge University Press, Mr. T. McKenny Hughes, M.A., F.R.S., the Woodwardian Professor of Geology, gives a succinct account of the Pleistocene deposits of East Anglia, based upon cautious investigation of the available evidence and tentative deductions therefrom. The subject is elucidated by over thirty carefully drawn woodcuts giving sections of the strata in various districts.

The gravels of East Anglia are, he shows, especially useful in any inquiry into the age and origin of the superficial deposits of Great Britain because of their wide distribution and the long continuous sections on the coast in which most of them may be studied. Difficulties, however, exist from their variable character in contiguous areas, from the isolation of the inland exposures, from their being so often drawn from pre-existing similar deposits, from fossils being handed on from older beds, and from some of the contemporary deposits being fresh-water and others marine.

Prof. McKenny Hughes shows that three phases are indicated by the deposits found in the Eastern Counties—the Argilliferous, or loam-bearing series (Barringtonian), the Saxiferous, or boulder-bearing series (Cromerian), and the Areniferous, or terrace-gravel series (Barnwellian). An interesting chapter deals with the mammalian remains found in the district, now in the collection at the Sedgwick Museum at Cambridge. It includes two species of rhinoceros, four of elephants, of which *E. antiquus* is the characteristic elephant of the Barrington type of gravel, and *E. primigenius* of the very rich Barnwell district, the hippopotamus, the horse, the Irish elk, the small deer (*cervus dama*), and the red deer, three forms of bear, the hyena, the wolf, and a few rare examples of the lion.

Summarising the later geological history of East Anglia, Professor Hughes traces

the following five phases:—First, the Miocene land-surface, over which in one part of the area chalk-with-flints was exposed and supplied the sub-angular gravel, while over an adjoining area the Tertiary Beds furnished pebbles. Second, a subsidence which proceeded from south to north, allowing the crag sea to encroach and wash off some of the superficial gravel which had been formed on the Miocene land. Third, an elevation which joined England to the Continent and washed down Tertiary loams sub-aerially, while a warm climate, in summer at any rate, allowed the southern forms of life to inhabit the area. To this third phase the author has given the name Argilliferous, or loam-bearing, and the topographical name Barringtonian, from the type section at Barrington, where fossils are abundant. Fourth, a subsidence which, proceeding from north to south, allowed a cold sea to advance over East Anglia, and, with compensating uplifts somewhere further north, supplied every variety of deep berg and flat ice to impinge upon and plough up parts of the coast, carrying loads of far-transported material. From the presence of these Professor Hughes has called this series of deposits Saxiferous, or boulder-bearing, with the territorial name taken from Cromer, within easy reach of which every variety can be observed. Fifth, an elevation during which sub-aerial denudation re-excavated old valleys and formed new ones, leaving gravel terraces at various levels, while the climate remained cold enough for a northern faunas to prevail. Sand and gravel form the chief part of the deposits of this fifth age, and the author has therefore called them Areniferous, and has taken the Barnwell section as the type, and from it the topographical name Barnwellian.

Each of these phases, Professor Hughes points out, represents a very long time, and the probability is that none of the changes were uniform or continuous. But whether they were or were not, it is clear that each must have left traces at various heights on the land as it rose and as it sank—as each episode began, culminated, and declined.

#### CONCRETE POLES FOR ELECTRIC RAILWAYS.

The following conclusions are arrived at by a committee of the American Electric Railway Association as the result of several years' tests and experience:—(1) Failure of a pole is always due to stretching of the reinforcing rods on the tension side. (2) A failure is always preceded by the appearance of hair-line cracks in the concrete on the tension side, at rather frequent and regular intervals from the ground line up. (3) It is advantageous to use a high grade of reinforcing steel to secure the maximum tensile strength. (4) Plain round reinforcing rods are practically as satisfactory as twisted or other rough rods, because in general the rods will elongate before they slip in the concrete. (5) A large number of small rods is preferable to a smaller number of large rods, as a better distributed reinforcement may be secured for a given amount of steel and a greater bonding contact surface is presented to the concrete. (6) The reinforcement need not be uniform throughout the length of the pole, but may be stepped off as the top of the pole is approached. (7) A pole with uniform reinforcement will break at the ground line, while one with tapered reinforcement will break at some point above the ground, depending on the taper of the reinforcement. (8) A concrete pole has an element of safety in it, as a failure of the pole will not, in general, allow it to fall to the ground.

The death has occurred of Dr. George Valentine, borough surveyor of Girvan.

# ON THE MANAGEMENT OF ESTATES IN MINING DISTRICTS, AND MINERAL VALUATIONS.\*

By G. TURVILLE BROWN, F.S.I.

The first object of this paper is, in the words which are so frequently heard in the City, "to bid a hearty welcome" to those mining surveyors who have been brought into the Institution under the special power contained in the by-laws. The title "mining surveyor" adds another to the list of subtitles by which members of our profession are known, and it may not be out of place here to set before members of the Institution what the word "surveyor" itself means. It is derived from an old French word "surveoyer," and although Murray's New Dictionary, the publication of which was begun in 1838, has not reached the word, an examination of older dictionaries and other works of reference shows that its root meaning is "overseer" or "supervisor," "one who has charge of land or works." The word, as we use it, does not appear to be much earlier than the era of Elizabeth. Professor W. W. Skeat, that great student of Early English words, does not give it in his dictionary at all, and one may fairly estimate that he would have done so had he been able to discover it in Chaucer or other Early English writings. Shakespeare uses the word many times, and in his vocabulary it undoubtedly meant land agent—the *alter ego* of some great landowner. In "Henry the Eighth" there is a character called "The Duke of Buckingham's surveyor," whose first appearance in the play is greeted by Cardinal Wolsey thus: "The Duke of Buckingham's surveyor! Ha! Where is his examination?" Unfortunately for those who would like to attribute to Shakespeare even greater powers of prophecy than he possessed, the word "examination" is shown later in the play to mean "proof of evidence." King Henry calls this surveyor the duke's "gentleman in trust," i.e., his trusted man of affairs, and although he was by no means a lovable character, we can trace with great distinctness the status of the professional man of the time whom Shakespeare desired to portray. From that time onward the intricacies of modern business life have caused numerous sub-divisions in the ranks of those calling themselves surveyors, but it can be claimed that the original holder of the title was so much nearer akin to the professional man whom we call a land agent than to any of the other branches, that the words "land agent" and "surveyor" are almost tautological. It will be of service to the Institution if any members whose tastes lead them to the examination of books and manuscripts of pre-Elizabethan times will inform our Secretary if they discover any earlier use of the word "surveyor." As a rule, the mining surveyor is more of an engineer than a land agent, although there are many gentlemen in our mining districts who practise in the dual capacity. On the largest estates it is common to find that the land agent works either with a mining surveyor on his staff or in conjunction with a consulting mining surveyor or engineer in practice in the district.

The minerals produced in this country may be divided into five classes:—

There are first of all the coals and shales of England, Wales, and Scotland, with which are associated the carboniferous fire-clays and ironstones.

Secondly, the iron ores of the Midlands, Cleveland, and Cumberland.

Thirdly, stone and sand for smelting and building purposes, clays, shales, and earths for brick-making and pottery, and chalk and limestone.

Fourthly, ores other than iron ore, such as tin, lead, copper, zinc, and gold, and with them may be included the slate of Wales, Cumberland, and Westmoreland, and the china clay of Devonshire and Cornwall.

Fifthly, the Cheshire salt.

This paper deals almost exclusively with districts producing coal and iron, in comparison with which the districts raising other minerals are relatively unimportant. Stone, sand, clay, chalk, and limestone for building

and for cement and lime-making were so widespread in their occurrence that many of the places which produce them are outside what may be called "mineral districts." Upon our coal supplies two Commissions, one appointed in 1870 and the other in 1901, have reported. From the monumental volumes they produced it may be gathered that for several hundred years to come we need have no fear as to the sufficiency of our supplies. A more careful examination of their pages shows, too, that although a great deal of the coal which can be most easily and cheaply mined has been got, there is no reason to fear that the competitive power of our collieries as against foreign coal will be impaired during the years to come. The state of development to which Britain has been brought by the capital expended in railways and docks, and in all other ways which tend to economy and efficiency in production and transport, and the geographical position of the mines, will probably more than compensate for greater difficulties in obtaining the coal. The districts which are likely to increase their output are the great South Yorkshire, Nottinghamshire, and Derbyshire field, and the steam and anthracite coal field of South Wales. From these two fields it is certain that, if the output is wanted, considerably greater supplies can be obtained in the future. On the subject of iron ore the position is far less satisfactory. Up to about the middle of the nineteenth century the great bulk of iron ore which was used in this country was obtained in the coal measures themselves, but the discovery of methods of using leaner ores and the increase in the cost of underground labour has led to a great cessation in the use of carboniferous iron ores. Their place has been taken partly by ores of oolitic origin, quarried or mined in the Midlands and in the Cleveland Hills in Yorkshire, by haematite ore from Cumberland, and by Spanish and other ores imported from abroad. Any mining surveyor who could discover further sources of ore which could be worked cheaply, and which would give a metallic content of 30 per cent. or over, within reach of our coal-fields, would be doing his country a very great service. It would appear that the Government might well initiate an inquiry into the matter of our iron ore supplies on the lines of the two Coal Commissions. Failing fresh discoveries of iron ore in these islands, it is probable that future smelting works will be placed on the coasts in places where foreign ore can be put direct from ocean-going ships into the furnaces. Our output of coal, which before the war had reached about 270 million tons, is the second largest output from any country in the world, being only exceeded by the United States of America. On the other hand our position as iron and steel makers is by no means so satisfactory, as we hold only the third place, being easily outstripped in the race by both the United States of America and Germany. Our production of iron and steel has not kept pace with our output of coal. In methods of production we are quite in the front rank, though it is worth noting that in the United States a far greater proportion of the mineral (coal and ore) is got by machines than is the case here, and that in the case of difficult clays we have still a good deal to learn from the Continent.

British minerals have been developed on a leasehold basis, and a short description of the way in which lessors receive payment for their rights and a note of the covenants contained in mineral leases may be stated. The figures given are within ordinary experience. Surface rents are usually at twice the agricultural rent (£2 to £5 an acre), though they vary greatly in different districts. Royalty is reserved in a number of ways:—

(1) By tonnage rent (3d. to 1s.) reserved either as a flat rent on all classes of mineral, or in the case of coal by one rent for large (9d.) and another for small (3d.) with or without allowances (5 per cent.) for fuel consumed, and in the case of iron ore either by flat rent (3d. to 1s., 3d.) or by a sliding scale rent varying with metallic content (50

per cent. equals 6d. plus 2d. for each additional unit).

(2) By a range rent of so much per acre, for the mineral £50 to £150 for the full or seam. This is a common rate when at a footage rent per acre, and means for each foot £15 to £50, the price of the seam. A foot acre is one containing 1,500 tons of coal, and 125 to 250 tons of ironstone.

(3) By fraction of 12th to 115th of the selling price at the mine, sometimes with a minimum and a maximum, but more often with a minimum only.

Modern practice is not in favour of the sliding scale royalty, and the trend of business seems to be towards tonnage rents and footage rents; the former are perhaps more common in South Wales and the latter in Yorkshire. Tonnage rents are perhaps the most satisfactory, but in that case the lessor's mining surveyor has to be most careful to see that the lessee sends out all the mineral he ought to from the area; in footage rent cases his concern is to make most accurate surveys to insure that the lessor is paid each half year for the acreage mined. Allowance for faults, wash-outs, barren ground, pillars, and barriers is usually made. Dead rents (£1 to £5 per acre) are charged in practically all mining leases. They are repayable out of royalties, in many old leases over a three or seven years' period, but now almost always throughout the term. The old idea of the amount of a dead rent was something approaching the full amount of the expected royalty divided by the term of the lease, but modern ideas have very much reduced the proportion it bears to the gross royalty. On large areas £1 per acre is common. Wayleaves (2d. to 1d. a ton), in the case of foreign coal carried through a property, either above or below ground, are generally asked, but in the case of large new undertakings they are not so generally given. The full term of a mining lease was formerly forty or sixty years, the latter being the longest period that a tenant for life under the Settled Land Acts can grant, but it is now not uncommon for eighty or ninety-nine years to be asked for and agreed to, though on settled estates the leave of the court to grant so long a term has to be obtained. Working covenants used formerly to bind the lessee "to work the area with all diligence and without intermission," but now more latitude is given, and the covenants usually allow the area to be worked in common with the areas of other owners. This concession, in the case of large concerns to be opened out on the "long wall" principle, is an absolute necessity. For members' information a specimen covenant is printed at the end of the paper. In the general covenants, subsidence, support, prevention of smoke and fumes (which are discussed later), access to the mine and to the plans and books of account which the lessee undertakes to keep, indemnification against claims by surface tenants and owners of other lands and minerals, and provision of weighing machines, are dealt with, in addition to such of the ordinary covenants contained in surface leases as are applicable. Restoration "fit for cultivation" of the surface land occupied, or payment for it at an agreed rate (£50 to £100 an acre), is a stipulation for at the end of the lease. Power to remove plant and not permanent buildings or stone buildings, subject to a right of pre-emption by the lessor and to the carrying out of covenants, is usually reserved to the lessor. In some leases a method of valuation is to be measured up and paid for by the lessor. A full and complete list of ways added.

Subsidence and support are matters which great difficulty has been experienced with which the mining surveyor has to deal. There has been a great deal of coal by modern methods, and the sinking down the surface of the ground, and the hydraulic piling, has been a great loss to take out an entire stratum of material and surface of the surface. The difficulties of applying such a method here would probably be so great as to render it impos-

\* Read at the ordinary general meeting of the Surveyors' Institution held on Monday, March 6, 1916.

sible to work the mineral at a profit. Two general rules of subsidence may be noted. The first is that the strata always break at right angles to the dip, so that workings do not affect, except in the case of absolutely flat strata, the surface of the ground immediately above them, but a point where a line drawn at right angles to their dip strikes the surface. This, in the case of deep mines lying at high angles, is a very considerable distance from a point vertically above the working, and this fact is especially important in view of the legal cases affecting subsidence which will be mentioned later. The second rule (which is not such an "axiom" as the first) is that the amount by which the surface falls is usually about two-thirds of the thickness of the stratum extracted, i.e., if a 3-ft. seam is taken out the surface falls about 2 ft. In the case of agricultural land, mere subsidence does not always cause damage unless drainage is interfered with, though there are cases where, by disturbance of the strata beneath, the land ceases to have the power of holding its subsoil water, and consequently becomes so liable to burn in the sun that its value is diminished. With regard to buildings, if it is desired to mine under land already built on or to build on land to be mined under, the advice of the mining engineer should always be sought. Buildings should be placed, if possible, with their length parallel to the level course or strike of the strata, so that their shorter side is on the dip. They should be put on concrete rafts, reinforced in the case of heavy buildings. A useful reinforcement can be made by inserting in the lower part of the concrete raft a spiral of an old colliery winding rope with old rails put in across it at evenly spaced intervals. It is a great question whether, when coal is to be worked on the "long wall" principle, pillars should be left even for the support of such important buildings as churches and mansions. But if it is decided to leave pillars it is of the first importance to leave them large enough. A small pillar left for the protection of a building is probably a greater danger than no pillar at all. In legal questions affecting subsidence some very important cases have lately been decided. One class of case affects the whole question of the relative rights of surface owners and mineral owners in those large areas in which the surface and the minerals are in different freehold ownership. Among these may be mentioned "Davis v. Trebarne," "New Sharnston Colliery Co. v. the Earl of Westmorland," and "the Butterley Co. v. the New Hacknall Co." From these cases it seems that a person having the right to work minerals by lease (and probably also, by implication, under conveyance) has no right to let down the surface unless the specific right to do so has been reserved to him. This means that for many areas the mine owner has to make terms with the surface owner, and the point has most certainly to be borne in mind in all future lettings and sales of minerals. Another recent case affects only the kind of public undertakings, such as railways, canals, etc. Under the various Acts by which the companies acquired their lands, they did not acquire the underlying minerals, but anybody desiring to work within forty yards (or other limit prescribed by special Acts) of the mineral immediately underlying the company's land is bound to give due notice of his intention to the company, which then had the option of either purchasing the mineral by arbitration or of taking the risk, which the working would cause. The mineral under the statutory company's land and the strips 40 yards wide adjoining it was dealt with generally by Sections 73 to 85 of the Railways Clauses Consolidation Act, 1845, and similar clauses in other Acts. To these the name of the "mining code" has been applied, and a suggestion which would seem likely to save a great deal of the time of our eminent lawyers and mining engineers would be to christen this mineral the "code mineral." In the case known as the Lord and North Western Railway Company v. Howley Park Coal Company it has been decided by the House of Lords that the railway company are entitled to this mineral support afforded by the

minerals adjacent to this "code mineral"; that is to say, although when they purchased they neither bought any mineral nor any right of support from the code mineral, they bought surface land with the common law rights of support which would be afforded by the minerals lying in adjacent lands. It would seem that at the time of the passing of the Railway Clauses Consolidation Act, 1845, the whole question of subsidence was little understood, and it was not then contemplated that strata of mineral might be worked vertically beneath a railway without any risk of subsidence whatever, whereas the working of other minerals at a considerable distance might be a very great danger. For many years the clauses forming the "mining code" were construed to mean that the company bought no right of support whatever, and upon that assumption great numbers of sales of minerals to railway companies for the protection more especially of heavy railway bridges and viaducts have taken place. If the Howley Park case had been decided earlier many of these sales would have been unnecessary, as it now appears that the companies have bought minerals with the object of obtaining support to which the judgment now shows them to have been entitled. These cases, therefore, in their interpretation of the law, have really caused a radical alteration in the law of support, and it is to be hoped that they will not prove a great hindrance upon the business of raising minerals. If the law is and remains as stated the Parliamentary Bar ought to jump for joy, for all future Private Bills in which it is sought to incorporate the mining code clauses will undoubtedly be opposed by all who know their business. With the working of deeper mines the whole matter of subsidence and support will probably assume even greater importance, especially in the Yorkshire coalfield, where many of the new undertakings will work under lands which are very little above the level at which they can be naturally drained. It can readily be understood that subsidence may result in damage almost equal to the freehold value of the surface in cases where need for drainage by pumping instead of by natural gravitation is caused. Another difficulty not quite peculiar to mining districts, because it also occurs in the industrial districts, is that of smoke and fumes from collieries and their attendant works. There is no reason why, with our present knowledge of how to consume fuel in the cleanest manner, and, therefore, to the greatest advantage, there should be any real nuisance from this cause. Better methods of stoking, especially the use of mechanical stokers, the gathering of smoke and fumes into tall shafts, and the more careful treatment of colliery tips, ought nearly, if not altogether, to cure this evil. Changes in the character of a district, owing to the sinking of mines and the establishment of industrial works, present problems which are more or less akin to those caused by the development of our towns. It may be remarked that the Housing and Town Planning Acts are likely to be of service in the colliery districts, where their wide adoption may be looked for.

Water supply and sewerage questions are of peculiar difficulty in mining districts, owing to the countryside becoming just sufficiently developed to require these facilities without a sufficient increase in rateable value being created to enable them to be supplied without imposing a heavy burden on the community. Rating of mines and wayleaves is a subject in itself. It cannot be fully dealt with here, but it may be touched on to the extent of an expression of opinion, that the only true basis upon which mines can be rated is that of applying to each undertaking the test of the hypothetical tenant. The rating surveyor has some little guide in the surface rents, and the mineral royalties and wayleaves, which the mining lessee has agreed to give, or, where the mines are worked by a freeholder, a comparison with those in force in the district. It is usually convenient to reduce these charges to a tonnage basis. To this an additional rent should be added, which may be taken at a sum per ton of potential output in respect of the capital works carried out by the lessee or working owner. This, however, cannot be taken at a percentage on the cost of works, for the reason that in some mines a large

fraction of the capital expended has had to be laid out owing to water or other underground difficulties, expenditure in combating which is a burden on the concern, and in no way an asset. To hold the scales of justice evenly as between different parishes, or different rating authorities, where minerals are actually mined in one parish or rating authority's area and raised to the surface in another, is also a difficult question. The parish of origin is probably entitled to all the royalty, with a small addition for facilities provided by the lessee within such parish, and the remainder of the difference between the tonnage assessment and the royalty belongs to the parish in which the mineral is raised. In the matter of industrial water supplies it may be mentioned that a large modern works, whether for coal raising, steel making, or other industrial purpose, requires a very large amount of water daily; in fact, it is not an uncommon thing for a surveyor to be asked if he can find a site which will command a supply of 1,000,000 gallons a day. Any site to which such a supply can be given at a reasonable expense is valuable, and is likely to become more so. Considerable pollution is caused to streams and rivers by mining operations. Mine water, although in few cases absolutely poisonous, is not a desirable addition to a drinking water supply. It would seem that the time has almost arrived when some further and more comprehensive methods of dealing with water supplies and sewage in each watershed should be adopted when the population has reached a given number per square mile of the watershed. The multiplication of small water undertakings and small sewage disposal works over a district served by one main channel must surely be wrong, and when one knows what pains our great cities have taken to insure that their water supplies are derived from sources above all possible risk of contamination, the conclusion must be drawn that anything which can be done to give smaller communities some of the advantages which greater centres of population can command must be for good. Boards dealing with both pure and foul-water channels and works in each watershed would go nearer to being able to provide such facilities than urban and rural district councils. They would also be far better able to use the drastic powers of the Rivers Pollution Acts than the county councils, some of whom do not attempt to follow the example set them by the Thames Conservators. Upon this subject it would have been a great pleasure to hear the views of our president, whose absence through illness we all so greatly regret, and who has had great experience in the matter of dealing with pollution of streams and rivers by industrial works.

(To be continued.)

#### OBITUARY.

The death has taken place at his residence, 169, Adelaide Road, N.W., at the age of fifty-two, of Mr. Niels M. Lund, the well-known artist, who was a son of the late Mr. C. H. R. Lund, of Newcastle. The deceased died suddenly from heart failure. Mr. Lund received his early training at the Newcastle Art School, under the late Mr. W. Cosens Way. He afterwards attended the Royal Academy Schools in London, and also studied in Paris, and first exhibited at the Royal Academy at the age of twenty-three. From that period he had a successful career, and exhibited at the Paris Salon in 1894 and 1895, being awarded a gold medal and honourable mention. Several of his paintings are now in the Luxembourg Museum and other public galleries. Mr. Lund was best known as a landscape artist, though he also painted a great number of portraits.

The death has occurred of Mr. Alexander Drysdale, builder, of Edinburgh. A native of Alloa, Mr. Drysdale over forty years ago started business in Leith as a carpenter and joiner. He built up an extensive business, and carried through large and important contracts in the East of Scotland. He was one of the oldest members of the Edinburgh, Leith, and District Building Trades' Association, in the affairs of which he took an active interest.

The new station of the London and South-Western Railway at Barnes Bridge will be opened in a few weeks' time.

## Currente Calamo.

We remind readers that Friday, March 24, is the receiving day at the Royal Academy for architectural drawings, and the dates for all other exhibits are as below:—

Water Colours, Pastels, Miniatures, Black and White Drawings, Engravings, and Architectural Drawings, Friday, March 24.  
Oil Paintings, Saturday, March 25.  
and Monday, March 27.  
Sculpture, Tuesday, March 28.

No artist is allowed to send or exhibit more than three different works.

All works must be delivered at the Burlington Gardens Entrance. None will be received at Piccadilly Entrance. Hours for the reception of works, 7 a.m. to 10 p.m. The Forms and Labels can be procured (during the month of March only) from the Academy. Applications for them made by letter must be accompanied by a stamped and addressed envelope for their enclosure.

We shall be glad, as usual, to facilitate the delivery of drawings if sent to us *at once*. We cannot undertake to do this if sent to us later than March 15, and, moreover, with the present delays and risks of transit friends in the provinces will do well not to postpone despatch. So far, the outlook is not favourable in respect to display as regards architecture, not a few leading architects having intimated that they are not sending this year.

The moratorium talked of against rent and other liabilities in favour of the married men who have attested under Lord Derby's scheme will create some interesting and possibly embarrassing problems. If income from houses of small rental is to be suspended for months, perhaps for a year or two, who is to pay the rates? Tenants who have joined the Army and cannot pay their rents week by week are hardly likely to be able to pay many months of rent in a lump. Neither will their widows. Is the nation to find the money wherewith to pay the rent of married recruits? If so, is the national liability to be extended to other forms of property? And can it much longer sustain the burden of increased taxation in the face of rapidly diminishing incomes and profits? The question opens up many issues. So far the wage-earners as a class alone have had their incomes raised and their liabilities eased. What about the rest of us? What will be the effect on trade if the thrifty alone are to find the money for everybody else?

Mr. Aneurin Williams asked the Secretary to the Treasury in the House of Commons on the 1st inst. whether the Trustees of the National Gallery had purchased Pieter de Hooch's picture known as "The Music Party"; whether he was aware that this picture changed hands two or three years ago for £3,500; and whether it had been bought for a smaller sum on this occasion. Mr. Montagu stated in reply that the picture had been purchased, and that it had been bought for a smaller sum "on this occasion" than the £3,360 said to have been the price at which it was bought in at a sale in Paris in 1913. Mr. Montague omitted to state the actual price paid by the nation for "The Music Party." The Amsterdam correspondent of the *Morning Post* says that the painting was offered to a Dutch gallery for 37,000 guilders (fully £3,000), and refused because of the bigness of the price. Has it cost us more or less than that amount? Pieter de Hooch's art is not inadequately represented in our National collections, and this additional example thereof some may think might have been waited for till we are able once again to indulge in more of the many things Mr. McKenna was urging us to do without at the Guildhall meeting last Wednesday about the same time Mr. Williams put his question.

We regret that by 30 to 21 votes the City Council of Liverpool have adhered to their decision not to hold an autumn exhibition in the Walker Art Gallery until after the termination of the war. Last year, when an anonymous donor met the anticipated deficit on the exhibition, the expenditure exceeded the receipts by £138, but out of this a certain sum should have been debited, it was contended, to establishment charges. The city has benefited by the addition of three fine pictures to the permanent collection. There is evidently little encouragement for living British artists just now, whether because all the money that can be spared Parliament is voting for the purchase of the work of dead foreign ones, we do not know.

A monument to be carved out of the living granite of a mountain, a monument of flawless granite two miles long and 1,000 ft. high, is to be built as an everlasting memorial to the people of the South and the cause of the Confederacy by Gutzon Borglum, one of America's foremost sculptors. This great monument is to be carved from the solid granite composing Stone Mountain, which is located near Atlanta, Georgia, and which is called "the largest pebble in the world," since it is one solid stone, two miles long, without a flaw or a fissure in its entire surface. Upon the face of the mountain hundreds of men will be engaged for eight years in carving companies of giant figures representing the Confederate Army and its famous generals on the march. The central portion of the group, bearing the likenesses of the leaders of the army on horseback, will be approximately 35 to 50 ft. high. The line of marchers will be nearly 2,000 ft. in length.

We echo the congratulations to the citizens of London of the *Decorator*, which, by its temperate but persistent advocacy, has in no small degree contributed to the success of the scheme for the training of boys in house-painting and decoration brought about by the London Master Decorators' Association, who urged the London County Council to form them for the benefit of the trade as a whole. In a few weeks the first batch of boys, who have received the best of instruction at the Brixton School of Building for three years, will be ready to be admitted into the shops of master painters. There will doubtless be no difficulty in getting them suitable positions; in fact, the probability is that there will not be enough youths available to fill all the vacancies. As Mr. Godfrey Giles pointed out, it is important that the employers take these boys under an agreement for at least two and preferably three years. Otherwise they may be tempted to leave after a few weeks by an offer of increased wages. The best course to follow would be for the employers to engage a lad for, say, one month by way of trial—in brief, to ascertain whether the situation is satisfactory on both sides. This point determined, an agreement for a term of years should bind both parties, to the advantage of both. If these day classes prove to be as satisfactory as they promise to be, there is every reason why similar classes should be established in every large town in the kingdom. In London several other trade schools might be taken under the wing of the Master Decorators' Association. For example, the Northern Polytechnic Institute, Holloway, N., where the instruction is given in decorators' work under the able supervision of Mr. Ivor Beaumont, R.C.A.

The Prudential Assurance Company's record is, as usual, one of prosperity, due to sound

business management and judicious publicity. That it should have been so during such a year, however, is more than usually remarkable. The total assets show an increase of over 3½ millions sterling. The total increase is £655,000 over that of the previous year, and a million and a quarter more than in 1913. There is an increase of 3329,861 in the premiums of the Industrial Branch, and every other item, as will be seen in the report on another page, evidences growth in its total. How this marvellous business result is secured and maintained year by year may be realised after reading the speech of Mr. Thomas C. Dewey, the chairman, at last week's meeting. He told the shareholders that the company offered last summer, in connection with the American Exchange, to place all their American securities at the disposal of the Government, and the bonds, when sent to the Bank of England, made up six motor-omnibus loads. The company had detached the coupon sheets from the bonds in order to facilitate cashing, and the adhesive paper used to reattach the coupons when the bonds were sent to the Bank of England measured well over eight miles. More than 44,000 bonds, of a nominal value of over £8,750,000, were dealt with by a staff of 100 within forty-eight hours. When all was finished the Bank of England found everything in order, except that a single coupon of the value of only a few shillings had in some unexplained manner vanished. Sir William Lancaster, the deputy chairman, added later that the bonds, guarded by a squad of soldiers, were taken to a particular ship, the destination of which was kept secret, and arrived safely in New York. One is almost tempted to wish that the Government would take a holiday and entrust the Prudential Company with the business management of all our affairs for six months!

Too many of us are in the same boat to be surprised at the announcement of the Associated Portland Cement Manufacturers that, for the first time in its history, the directors are unable to sanction the payment of the interim dividend on the Preference Shares on the 31st instant, which hitherto has been paid as punctually as the Bank of England pays on Consols. Let us hope we shall all share the prosperity which undoubtedly awaits the company, in common with all similar sound undertakings of our great group of industries which have stood the strain so well of the dislocation due to the war and to Mr. Lloyd George's finance. We feel so sure of this that even though the Associated Portland Cement Preference Shares are cumulative and, therefore, bound to get any arrears of dividend before the Ordinary shares get anything, we should be very sorry to see the latter, so confident are we that they, too, at no distant date, will figure in the dividend list.

Sir Alfred J. Newton, the chairman of Harrods' Stores, whose experience and good fortune are certainly second to none in the Kingdom, in reply to a question asked at the meeting of the company, said that he was of the opinion that the company had been very successful in his view. He said that it was suicidal to deaminate the company, and that their communications with the public were of the importance of the most vital nature, and we fear, due to the war, the neglect of that fact, and that, consequently, the journal like ours, were making considerable sacrifices just now rather than increase advertisement rates in order that reasonable publicity might be secured by their advertisements.

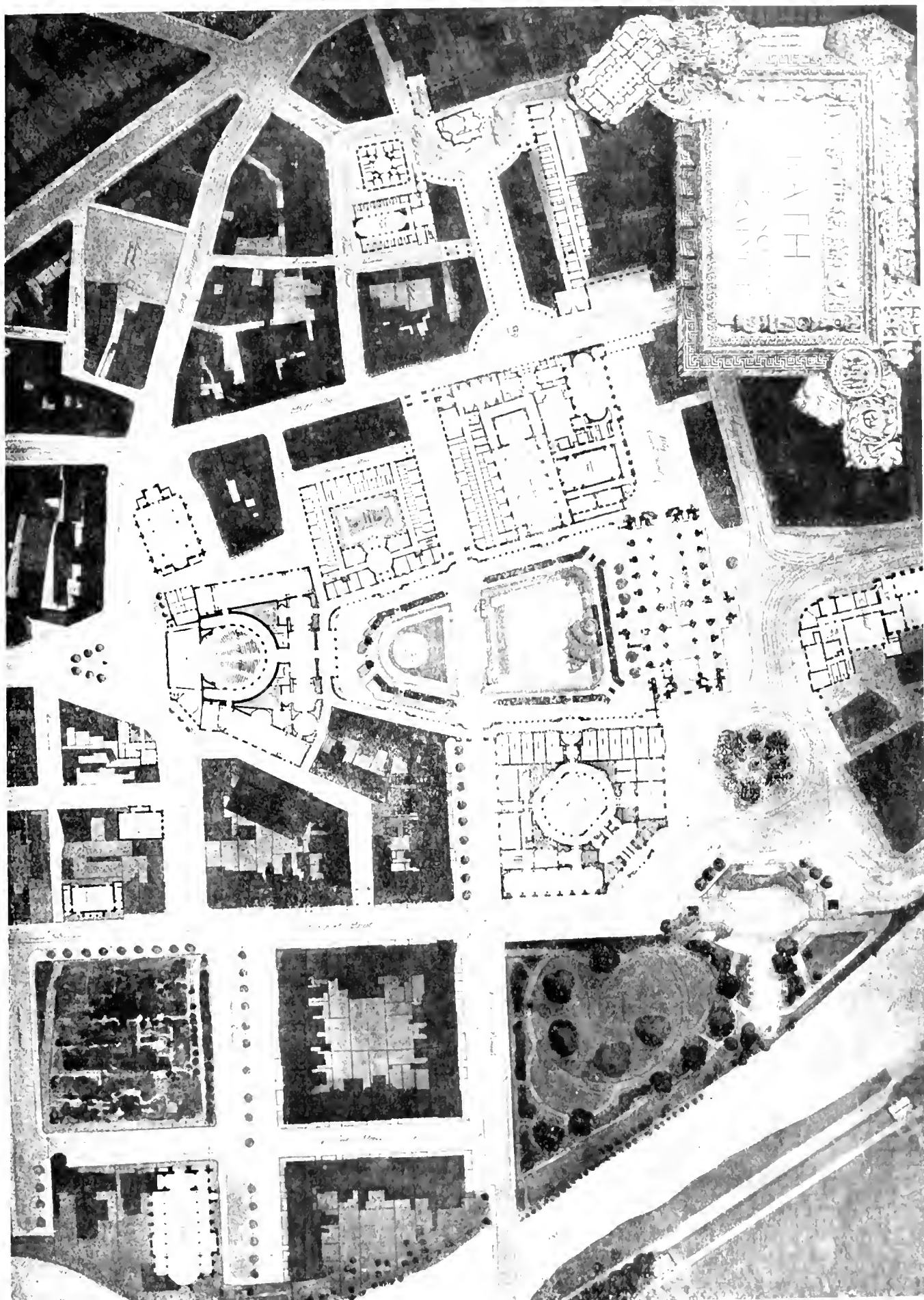




BATH IMPROVEMENT SCHEME

ROBERT ATKINSON, F.R.I.B.A., and GEORGE ALEXANDER, A.R.I.B.A., Architects.





## Our Illustrations.

### BATH IMPROVEMENT SCHEME.

The problem in this case was to provide in the centre of a populous and densely built city a civic centre of a character in keeping with its reputation as the foremost watering-place, where all descriptions of visitors and citizens might find recreation and amusement, which would not involve too great a sacrifice of historic buildings or be too costly; to provide bathing establishments, concert halls, libraries, and exhibition galleries, hotels, shops, and the thousand and one things necessary for a successful spa. Messrs. Robert Atkinson, F.R.I.B.A., and George L. Alexander, A.R.I.B.A., having been called in by the city authorities to advise them on the point, and commissioned to prepare a plan showing the general street improvements necessary in connection with the scheme, it became essential to study the historical monuments and associations in detail, such detail being fortunately forthcoming in overwhelming masses, the monuments being of more than usual interest, and providing a nucleus of immense importance. Bath presents a problem which must follow closely the traditions already commenced, and though these traditions were unfortunately killed outright during the Victorian period, they nevertheless still exert such an influence on taste as to be all powerful in their call for a revival of tradition. These details confirm the opinion that the only direction in which it would be possible to make extensions to the bathing establishments would be over the south-east part of the old city, since in that direction the least damage would be done in the way of destruction of fine buildings or buildings of historic interest; and as this district is largely a slum neighbourhood, even the best houses being let out as tenements, they have suffered already to such a degree that their reparation would be costly and difficult. From studies both from documents and on the spot it seems clear (as already stated) that the only possible direction for extension must be in a south easterly direction. The plan of the district shows a rough parallelogram with a busy street with trams (Stall Street) to the west; another street (Manvers Street) with tramways to the east; the railway station on the south; and the Abbey Church, Orange Grove, and Pump Room forming a line along the northern boundary. Clearly, then, the solution was to avoid main streets, restrict the extensions to the centre of the mass, avoid as many good buildings as possible, and remove only dilapidated property which would in itself be a town improvement. The Abbey Green and lines of North Parade buildings, with other clearly defined property lines, suggested the open tapering parallelogram adopted (somewhat after the shape of the Piazza San Marco in Venice), and with the object of opening out the south side of the Abbey Church and of using it as a background, this figure was lengthened as far as possible to the southward to admit sunlight and also bring into view the top of Beechen Cliff. It was at first intended to open the view of the Abbey right out to Newark Street, but this was abandoned because of the meanness of the latter street, and because of the difference in levels (some 10 ft.) also the sense of enclosure and completeness would be lost and the circulation of the cloisters broken. The whole of these establishments, as well as the existing ones, are entered from the encircling covered cloister, which has openings to the Abbey Churchyard and the Orange Grove, and steps leading down to St. James Street and Orchard Street. The whole of the inner part of the northern half of the Forum is dropped down about 10 ft. or within 5 ft. of the level of the Roman Baths. This height would enable any remains discovered to be left exposed *in situ*; any lower level would mean their partial

destruction, as the general level of remains is some 4 or 5 ft. above flood level, approached by a wide flight of steps, and protected by stone balustrades. The lower part is surrounded by a raised platform of three steps, giving access to the lower level of the Roman Baths. The Abbey Church not being symmetrically placed, some feature was necessary to mark the centre line, and as a foil to the high vertical lines of the church a simple horizontal motive seemed best. Several sketches were made for this screen wall in different stages of height, length, and elaboration, and the one shown finally adopted as most nearly fulfilling the logical requirements. The corners of the sunken space were rounded as the best way of joining converging lines, and they gave at the same time an indication of the corner exits to the Orange Grove and churchyard, whilst they help to bring together the two halves of the Forum, which would be in danger of complete separation if treated symmetrically in themselves. The deep sinking at this end emphasises the Abbey in the background, and the level gradually rises towards the portico of the Concert Hall. With this object in view, the cross road has been dropped in the middle a couple of feet below the encircling road. A bandstand ingeniously worked in against the background of the screen wall completes an open-air concert theatre, of which the steps and balustrades form the auditorium. Roman detail has been utilised here as best suited to the proximity of the Roman Baths and as a better background for any fragments discovered. The lay-out of the upper portion of the Forum is simpler in character and considerably smaller. A circular pond and basin mark the intersection of the different foci, and concentric rings widen out gradually to turn the upper corners. Strong encircling lines of trees, paving, and roadways are carried completely round the Forum to pull together the two halves and prevent the cutting before described. Evergreen oaks, ilex, or evergreen trees are planted to give a colour-note in the winter months; and to simplify their restriction within reasonable height where they come on vaults, etc., pockets of earth of sufficient size for their growth would be constructed. The colonnades are a continuation of the policy inaugurated by Baldwin in Bath Street, and the porticoes to the pump room, which were built with the definite object of providing covered connections between the various buildings, and although in Bath Street they defeat their purpose by being gloomy by reason of the overhanging mass of buildings, yet the idea is logical and capable of further extension. The northern end of the Forum is closed by the Abbey Church as before described, and the southern end closed by a new concert hall, the portico of which does for this half what the screen wall does for the other, namely, forms a focal point. This portico is based on that of St. Martin's Church, but the detail is more akin to the work of the Woods. Generally speaking, the Roman detail of the sunk portion is gradually tempered to the Late 18th Century detail of Baldwin in the colonnades which partakes of the Greek Revival, at that time rapidly becoming fashionable. It is unnecessary to go into the internal details of this building, as they are purely conjectural, but an outline of the available accommodation can be given. The concert hall itself is large, capable of accommodating several thousand persons, suitable for opera on a good scale, and is provided with ample promenades, crush halls, and refreshment rooms. The remainder of the building replaces the Literary and Scientific Institution. Club rooms, exhibition galleries, and libraries are provided on the first floor, and it is intended to form a Roman museum in the basement galleries, which by reason of the fall in the streets will be amply lit and actually above ground. These latter might also be used as a local museum for doorways, staircases, woodwork, etc., from demolished buildings, after the style of the London Museum. To the west of the Forum, a entirely new bathing establishment has been planned with a central glazed winter garden adorned with pools and ornaments. This building is of two stories in height (with

lift), and gives accommodation for about 100 bathers (it is worked out on data supplied by Mr. Taylor), and has a large lounge hall, cooling-rooms, lifts, etc. The hotel is not described in detail. The planning, as before stated, is purely conjectural; but, as far as it goes, an endeavour has been made to provide all modern ideas. The existing buildings have often been described and are well known. Until about 1880, the buildings were very much as left by Baldwin and Plummer. At this time the Roman baths were finally uncovered by Major Davis, who also built an extension to the Queen's Bath, and made alterations to Baldwin's Bath by the addition of a false attic wall and other things which are chiefly remarkable for their incongruous details. Many of the present baths are in the basement, and much dissatisfaction exists among bathers on that account. These buildings also encumber very seriously the Roman remains, which otherwise could be made much more interesting and easier of access. It is therefore proposed to remove them entirely, and substitute a new system on the extended site (see plans), with accommodation for about eighty bathers in two stories. The new buildings give a total of about seventy new baths, against the fifty existing and 160-200 new dressing-rooms. In order to make the principal entrance from the Forum, a doorway has been arranged on to the upper gallery of the Roman Bath, which gives access to the old concert hall and pump-room, and the waiting hall of the new extension, which latter is also connected directly to the pump-room. The Hot Bath marks the commencement of the modern bathing system. Previous to this time, the baths were all open air, and bathers arrived and departed in their bathing dresses by means of chairs. John Wood, Junr., was commissioned to prepare a design for a new hot bath in place of the old hot bath and lepers' bath, and the designs were published by order of the city council in 1777.—The Cross Bath is next in date to the hot bath (1790); it also was originally open, and has been altered and re-altered times without number. The Cross Bath is of such great interest and of such fine architecture that its restoration is recommended in the same manner as the Hot Bath. The Royal Baths were built by Decimus Burton in 1829, and after ninety years of use are still substantially as then erected. A large flight of steps lead down to the gardens and river, and provide the necessary horizontal lines as the foreground to the Abbey. The Pylons mark the centre line of Pierrepoint Street, and form a focal point in the approach from the station. They also compose with the extreme edges of the Orange Grove, and cover the transition from the plain walls to the steps. The circular garden of the Orange Grove it is not proposed to interfere with, except that the obelisk, which has practically no base, and which is now to become an important focal point, is raised upon a pedestal, so as to make it more conspicuous. The preservation of the cricket fields is of the first importance; they are among the most valuable amenities which Bath possesses.

### THE NATIONAL LIBRARY OF WALES. ABERYSTWYTH.

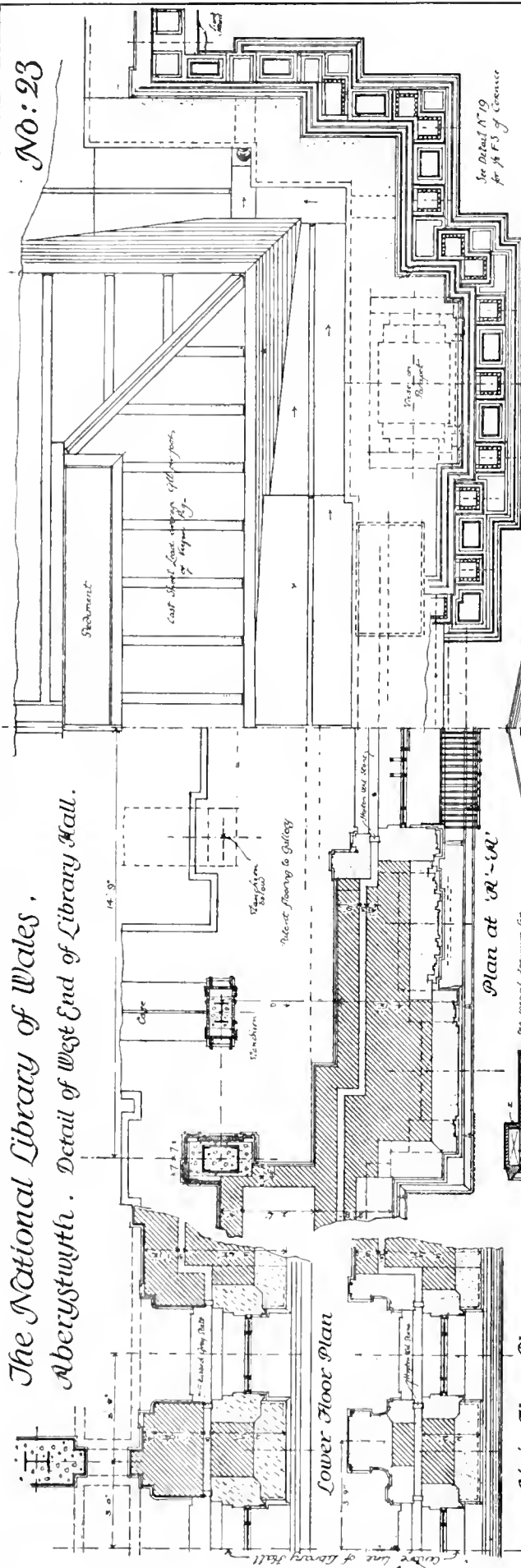
Our illustrations show a general view of the above buildings, beneath which is the front elevation towards the west. On it is denoted the library hall, the administrative block, and main entrance, the librarian's entrance, and the print-room. The key plan where hatched shows the portions of the building erected and in course of erection. It will be seen much work yet remains to be done. Our second plate is a detail of the west end of the library hall, which should be of much interest to our readers on account of its thoroughness. We propose to give a series of these details as space will permit. The design for this building was the result of a limited competition assessed by Mr. Reginald Blomfield, R.A., F.R.I.B.A., who placed that of Mr. Sidney K. Greenslade, of Gray's Inn Square, W.C., and Exeter, first. Mr. Greenslade promises a few notes to accompany the details as they appear. We illustrated the competition drawings in the BUILDING NEWS of June 11, 1909.

In the BUILDING NEWS for May 1, 1914, a double-page perspective, taken from the north-east, was given of Messrs. Belcher and Jooss's scheme for new Spa Baths, hotel and gardens at Bath.

237-240

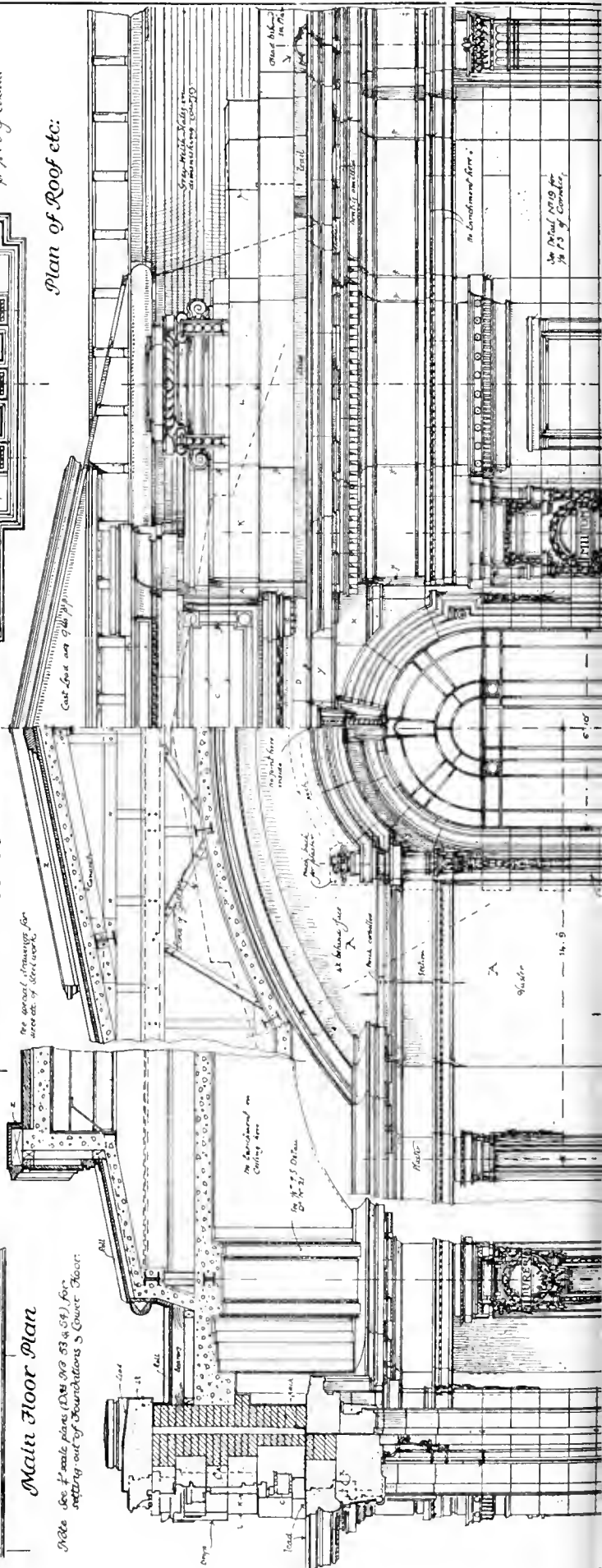
*The National Library of Wales, Aberystwyth. Detail of West End of Library Hall.*

No: 23



Plan at 'N'-'M'

*Plan of Roof etc:*



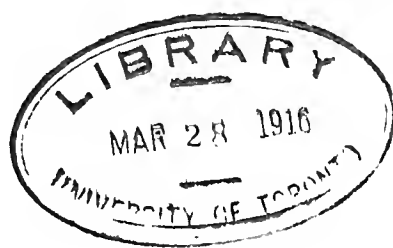
Note See 7 scale plans (DSS NB 53 & 54) for setting-out of Foundations & Lower Floor.



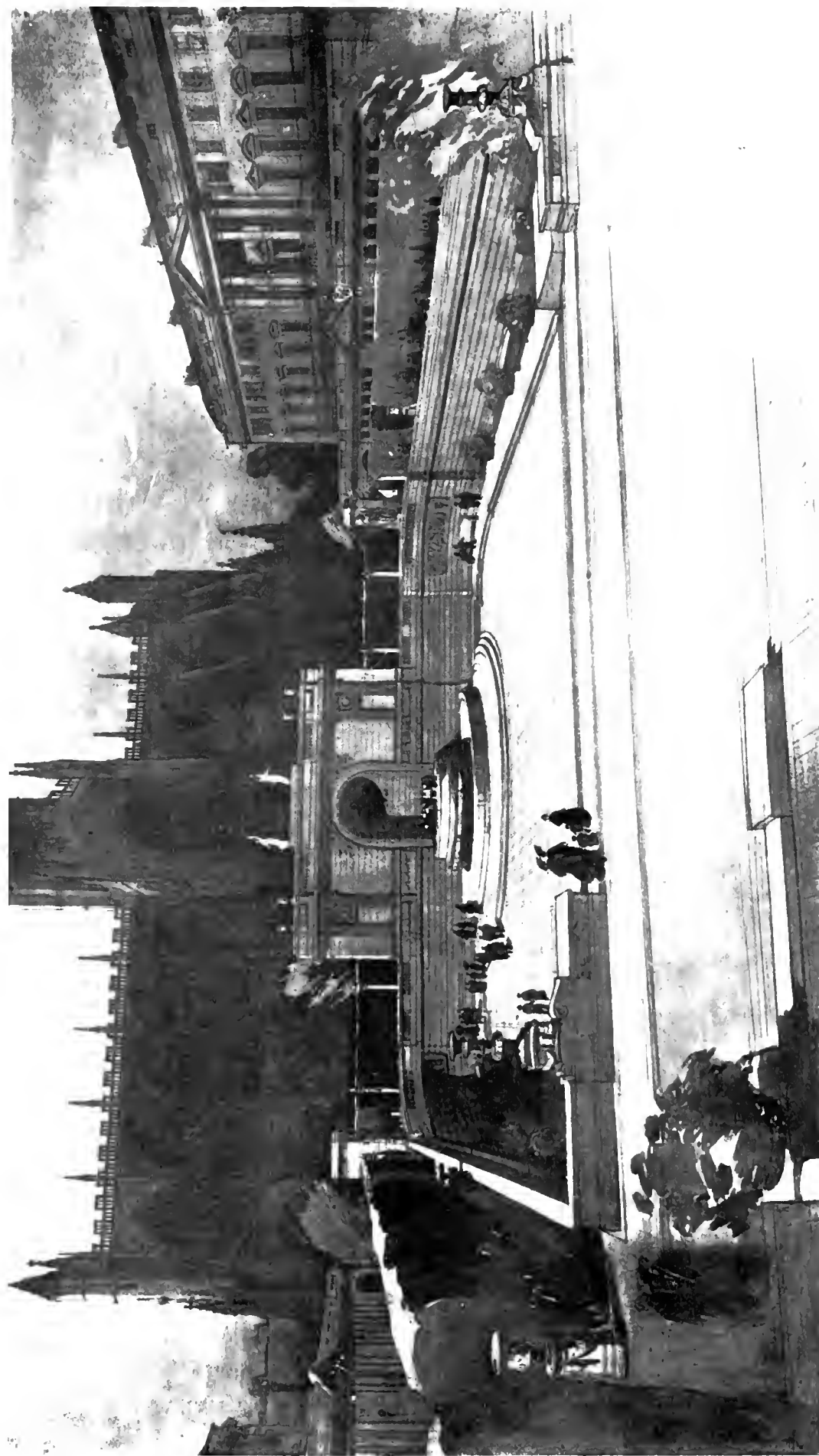






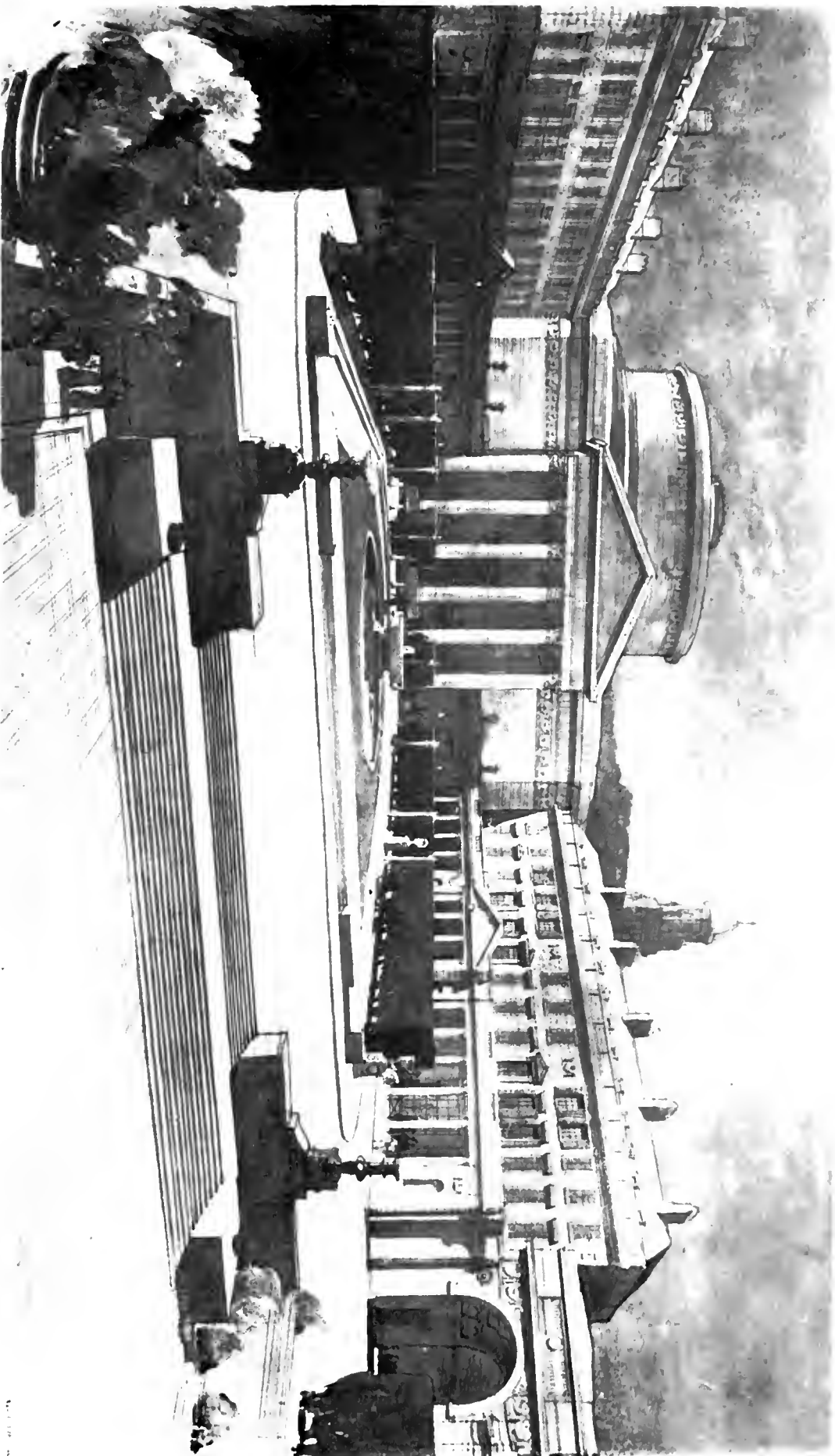


THE BUILDING NEWS, MARCH 8, 1916.



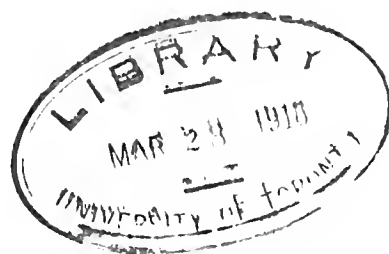
BATH IMPROVEMENT SCHEME.—ROBERT ATKINSON, F.R.I.B.A., and GEORGE ALEXANDER, A.R.I.B.A., Architects.

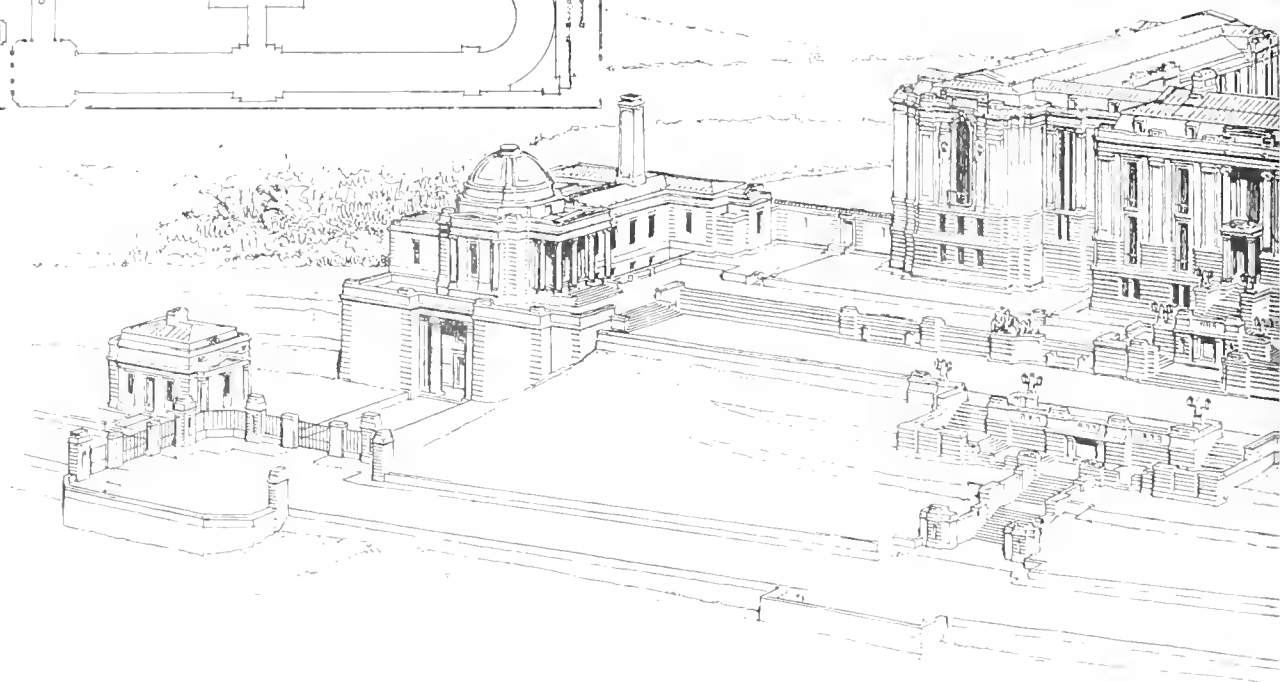
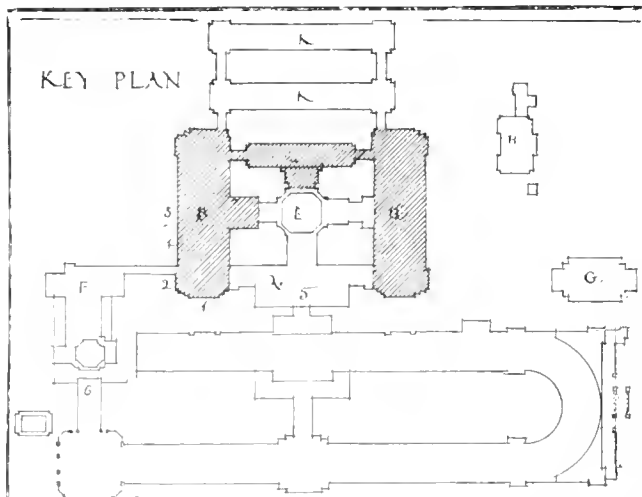
THE BUILDING NEWS, MARCH 8, 1916.



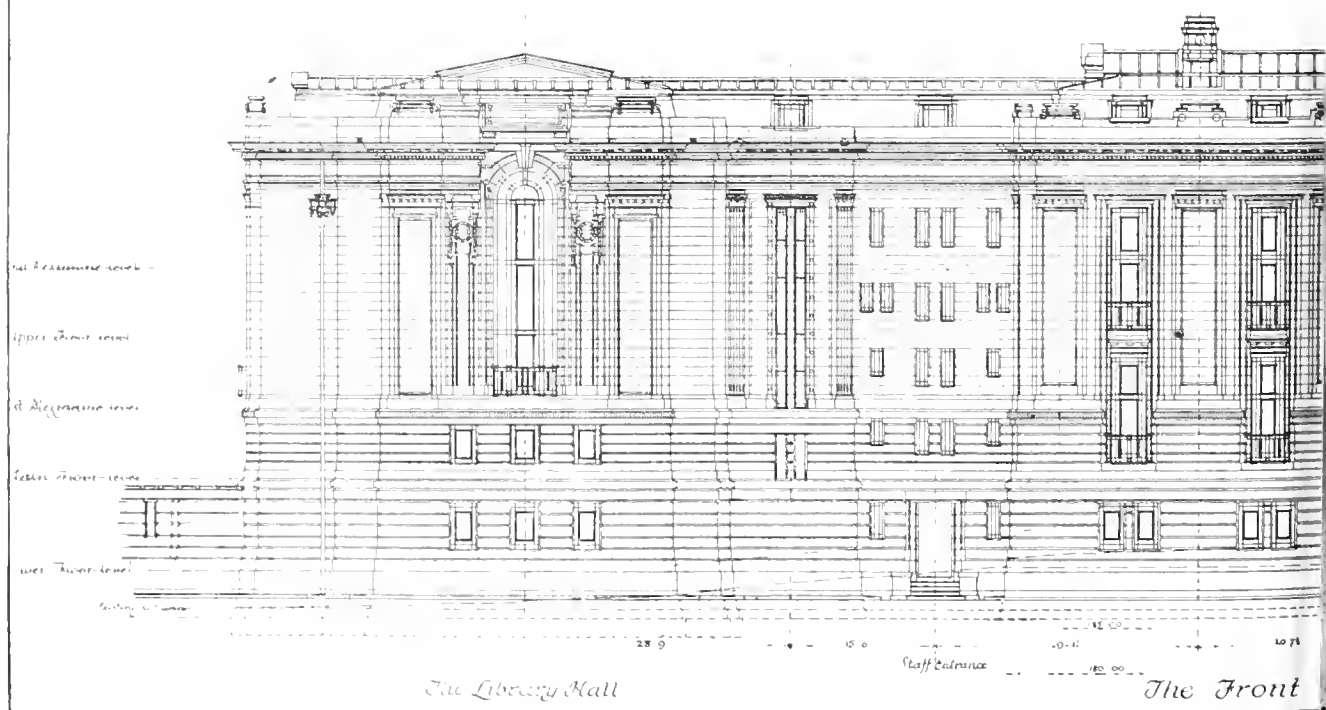
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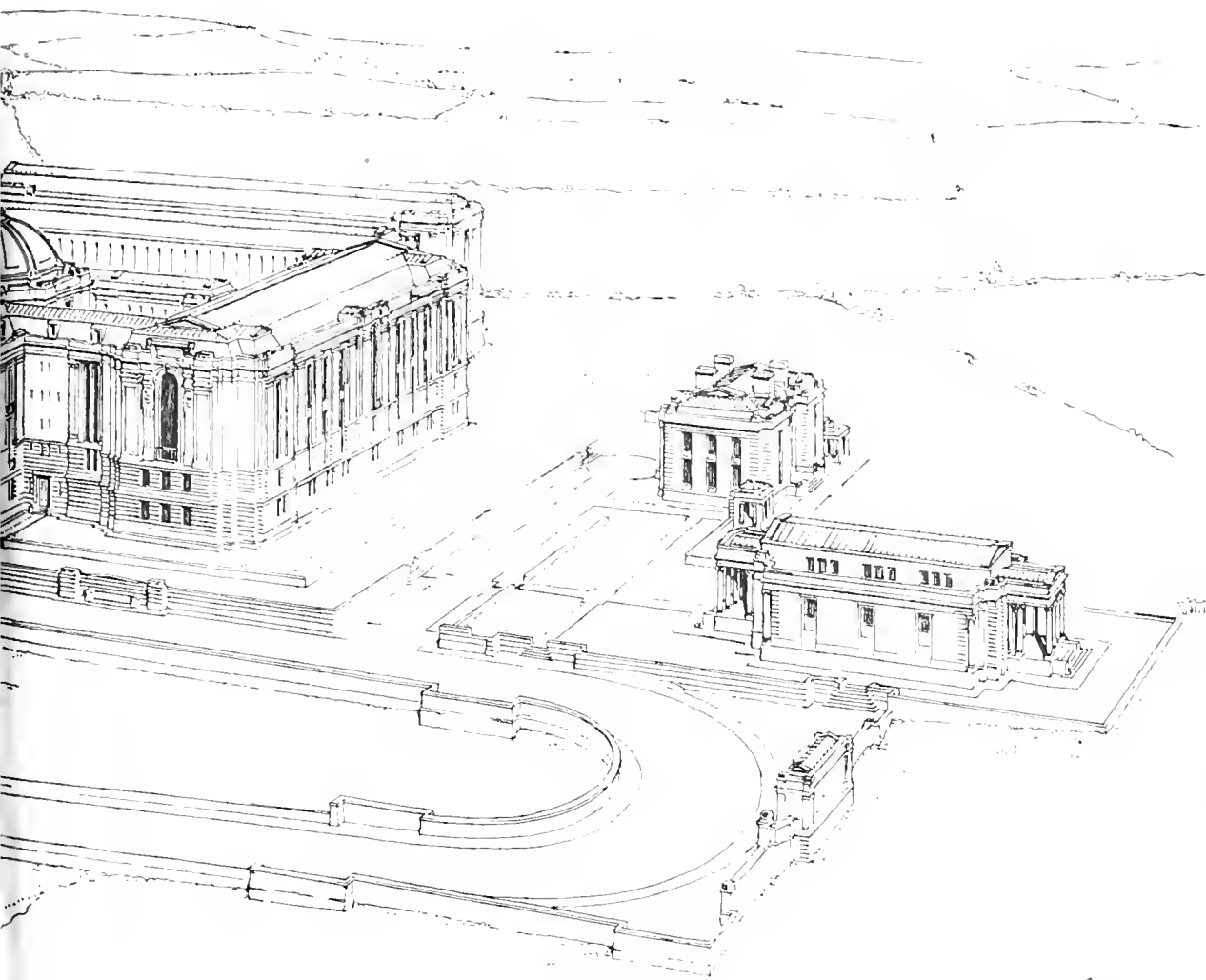




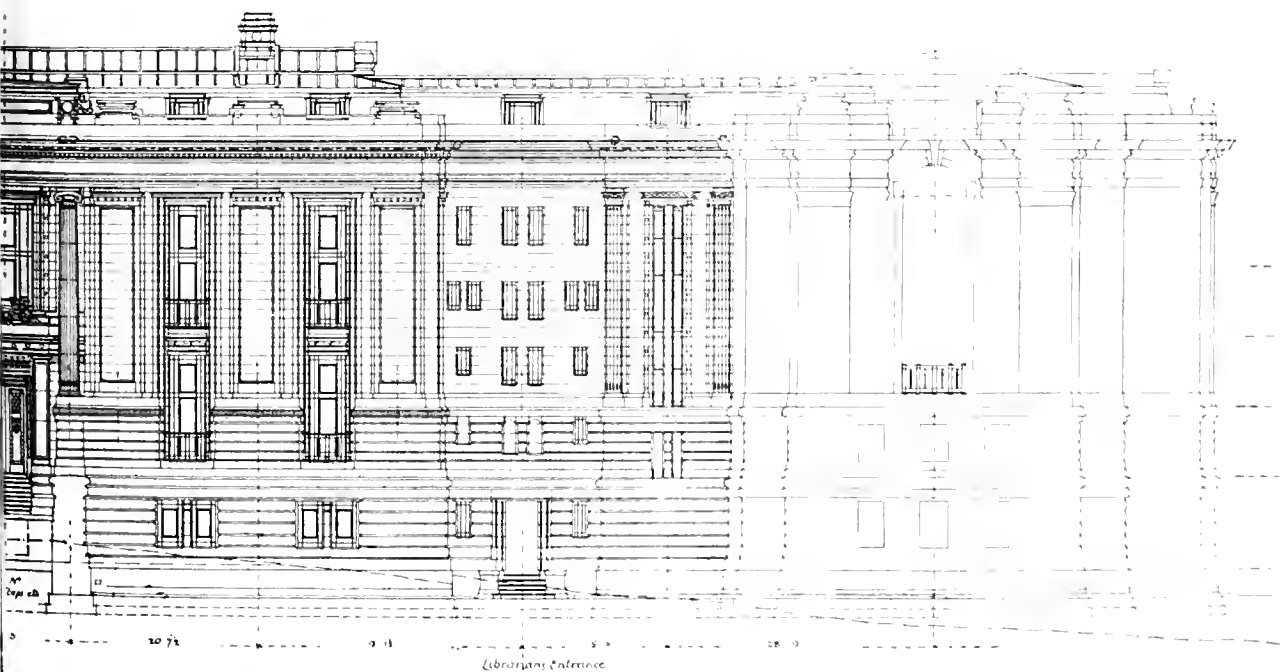
*The National Library of Wales,  
Aberystwyth : View from the South-West .*







SINNEY K GREENSLADE  
Architect.



towards the West  
Librarian's Entrance  
The Print Room  
SOUTH-WEST, AND WEST ELEVATION. MR. SINNEY K. GREENSLADE, A.R.C.B.A., ARCHT.



## Our Office Table.

It was announced in circular 920 that the award of Princess of Wales's Scholarships might be suspended for 1916, or, if continued, would be made on conditions to be announced later. The Board of Education have now decided that, as the national competition is not this year available as a basis for award, they will, if there is a candidate of sufficient merit, award at least one Princess of Wales's Scholarship on the basis of the examinations in art to be held in 1916. The conditions of this scholarship, both as regards award and tenure, will be identical with those fixed for local scholarships by the interim regulations for awards in art, subject to the following modifications specially affecting the Princess of Wales's Scholarship:—The scholarship will be of the value of £24 for three years; it will only be open to women students of schools of art who have not previously held a local scholarship or a Princess of Wales's Scholarship. The board may, if they think fit, award a second scholarship of £24, tenable for one year only.

The Rev. J. W. Horsley, past-Grand Chaplain of England, controverts the statement recently repeated by Mr. Mervyn Macartney that "Sir Christopher Wren was a great Freemason and founder of the Lodge of Antiquity." Mr. Horsley says that "leading Masonic antiquaries have discredited and even disproved this statement. 'Probably,' he adds in a letter to the *Guardian*, "the source of the imagination is a confusion between Freemasonry and the Masons' Company of London, extant, and dating certainly from 1375, perhaps from 1220, a Guild entitled to representation on the Court of Common Council. Of this City Guild Valentine Strong was possibly, and Thomas and Edward Strong (his first and fifth sons) were certainly members. Valentine was probably a member of the trade 'Company of Freemasons, Carpenters, Joiners, and Slaters of the City of Oxford,' incorporated in 1604. These were, of course, operative masons, and it was not until later that speculative or non-professional members were 'accepted.'"

An Order in Council is gazetted under the Liverpool Cathedral Act, 1902, substituting, as from May 1 next, the Chapel of St. Nicholas for the Church of St. Peter (formerly the cathedral) as the parish church of Liverpool, now that a portion of the new cathedral, namely, the Chapel of the Blessed Virgin Mary, has been opened and dedicated for divine service. The Church of St. Peter is to be demolished and the site and churchyard will vest in the Ecclesiastical Commissioners. The monuments and memorial tablets in St. Peter's are to be transferred to the Chapel of St. Nicholas or otherwise disposed of as the Bishop of Liverpool may determine, unless claimed by the living representatives. The monument to Bishop Ryle is to be removed to the new cathedral, and those to Mr. Foster Cunliffe and Alderman Earle are to be handed over to their representatives.

An industrial process has been in use for producing decorative ornaments which consists in the employment of a first layer of mortar, preferably of a dark colour, upon which is applied a second and thinner layer of another and usually lighter colour, then a suitable design is scratched through so as to uncover the second layer, thus producing an effect in two colours. But such material has been very fragile up to the present, and would not stand the wear. An improved process announced from the United States consists in the use of an underlayer in cement mortar or ceramic paste upon which is put a second layer of the same, then the design is scratched through as before. The material, in the shape of a brick, tile, or slab, is then baked in the furnace so as to become hard, and in this way the decoration can be used without fear of damage from weather or other causes.

At yesterday's meeting of the London County Council the General Purposes Committee recommended that the administration of the London County Council (Celluloid, etc.) Act, 1915, should be referred to the

Building Acts Committee. The Act deals with the conditions under which the manufacture and storage of celluloid may be carried on in the county of London, and makes provision for both (i.) the precautions to be taken to obviate fire and explosion, and (ii.) the structural measures to be taken to secure safety of life and limb in case of fire. The Establishment Committee recommended that the services of three assistants on the unestablished staff of the architects' department who have attained the age of 65 years be retained up to and including June 30 next. They further recommended that Mr. C. R. May, an assistant in the second class in the architect's department, be transferred to the Education Officer's department, in order that he may carry out clerical work in regard to the supervision of window cleaning in the Council's schools.

The annual exhibition of the Glasgow Artist Teachers' Society was opened in the Glasgow Art School on Saturday by Sir James Guthrie. This year the exhibition is composed of gift pictures, which will be distributed by means of an art union, the proceeds to be given to war charities. Oil and water-colour paintings, etchings, lithographs, and pastel works have been received and attractively hung. The contributors include Messrs. F. A. Walton, Edwin Alexander, Robert Macgregor, Maurice Greiffenhagen, Fra. H. Newbery, D. Forrester Wilson, A. R. W. Wilson, R. Auning Bell, W. Somerville Shanks, Sir Frank Short, E. Cayley Robinson, and John McElhie. Mr. Walton's picture is a water-colour entitled "The White Goats," which is marked by vivid greens and blues; a clever sketch of Galloway country is sent by Mr. Edwin Alexander; and the interior "Hutch and Horses," by Mr. Newbery, is in pleasant dark tones. Dazzling colour effect is the feature of Mr. Greiffenhagen's study of an Oriental washing-day; while the landscapes by Mr. A. R. W. Allan and Mr. W. Somerville Shanks are charming atmospheric achievements. An interesting exhibit is that by Private Hugh C. Wilson, Cameron Highlanders, consisting of four pastel sketches done within 300 yards of the German trenches.

Out of the interest provided by the Temple West Fund the trustees of the National Gallery have purchased "The Music Party," by Pieter de Hooch (as we recently announced), now on view in Room XIX., and also, with the further help of the National Art Collections Fund, the "Madonna and Child," by Masaccio, exhibited at the Grosvenor Gallery in 1911. The picture by Masaccio, which is in a fair state of preservation, was sold from the Woodburn Collection in 1860, as a work by Gentile de Fabriano. It has now been acquired from the gallery of the Rev. Arthur F. Sutton, of Brant Broughton, Lincs. It was painted probably about 1266, three years before the artist's death, and represents the Virgin, enthroned on a high seat, with two angels below worshipping and two others playing lutes. The size of the panel is 53 in. by 23 in. Mr. Betenson in 1907 suggested that it is the centre panel of the great altar piece executed by Masaccio for the Church of the Carmine at Pisa, other portions of which are now in Berlin, Vienna, and elsewhere.

The death has been announced, at the age of sixty-five, of Mr. George William Watson, M.S.A., of the Public Works Department of the State of Victoria, Melbourne. For forty years past he has been Government Architect.

Mr. George Clarke Gobey died at his residence, the Red House, Wotton, on Tuesday last week, in his 71st year. He was a director of Sessions and Sons, Ltd., timber and slate merchants, Gloucester, also of the Cheltenham and Gloucestershire Building Society.

"Sewage and its Precipitation: Facts and Fallacies from Laboratory and Practical Tests," was the subject of a paper read by Mr. Reginald Prown, C.E., before the Society of Engineers on Monday evening. Laboratory tests, Mr. Brown urged, must be checked by tests on a practical scale before any definite line could be followed or any definite statement made as to the value of a precipitant, and a laboratory test is only sufficient in so far as it gives results under ideal conditions which are by no means met with in actual practice of sewage disposal.

## WATER SUPPLY AND SANITARY MATTERS.

FARBY West Riding. The sewage disposal works at Farby, originally constructed in 1895, and enlarged in 1902, have just been remodelled and extended under the direction of Mr. J. E. Aldersley, the surveyor of the urban district council. The works, now done with a dry water flow of 25,000 gallons per day. The ordinary flow of sewage is received into septa tanks forming part of the old works, and after passing through these is conducted to a sedimentation and storage tank. The effluent is then pumped into a filter supply tank, and passes through revolving sprinklers on to two percolating filters, 6 ft. deep, constructed of stonework. These filters are 64 ft. in diameter, and lined chiefly with honeycomb slag. The floors of the two new filters are covered with Stiff's drainage tiles. The effluent is then passed to the two new humus tanks, and is then conveyed on to three special land areas which are undrained, or discharged directly into the beck. The engine-house has been extended and a new plant and coal store erected. The motive power is supplied by three suction gas engines, supplied by two suction gas plants. The contractors for the general works were Messrs. C. Collins and Co., of Preston. The urban council have this week voted Mr. Aldersley, the surveyor, £120 in acknowledgment of the services rendered in connection with the works of remodelling.

SUTTON-ON-SEA SEWERAGE SCHEME.—At the last meeting of the Spilbury Rural District Council, the sanitary committee reported they had considered counsel's opinion as to the legal position of the council with regard to Sutton-on-Sea sewerage scheme, also the surveyor's report as to the condition of the sewerage system. The committee had called in the engineer, Mr. Herbert Walker, of Nottingham, and expressed their dissatisfaction with the existing condition of the scheme generally, and requested him to get the defects enumerated in the surveyor's report remedied. The attention of the engineer was also called to the amount of extras incurred, and to the fact that the balance left in the hands of the council, after the payment of No. 24 certificate, was too small and not in accordance with the provisions of the contract, and he was requested to refrain from issuing any further certificates until the discovered defects had been remedied. The engineer intimated that the contractor was prepared to meet the surveyors, and go into the question of defects. It was resolved that the payment of certificates Nos. 25 and 26 be deferred. They amounted to £861 15s. The surveyors were instructed to meet the engineer and contractor.

## TRADE NOTES.

In order to ensure the roughcasting and flat roofs of the kennels of the Royal (Dick) Veterinary College, Summerhall, Edinburgh, being made permanently watertight, we hear the powder Pulvis has been employed with good results.

Under the direction of Mr. T. B. Whitney, F.R.I.B.A., Old Jewry, E.C., the "Boyle" system of ventilation (naturally embracing Boyle's latest patent "Air-Pump" ventilator and air inlets, has been adopted for the cheque sorting room at the London City and Midland Bank, Fench Lane, E.C.

A private limited company has been formed to take over the old-established business of Messrs. William Shepherd and Sons, of Milkstone, Rochdale, and the title of the new company is to be Messrs. William Shepherd and Sons, Limited. Messrs. William Shepherd and Sons have long been noted as specialists in paving and building materials, from "Red" asphalt concrete being a favourite material for play grounds and carrying ways.

Mr. Frederick Smith, M.A., has succeeded Mr. Frederick H. Jones, C.E., as Chief Engineer of the Builders' Circular Building Co., Ltd.

The buildings of St. Amand, Calvados, France, which were destroyed by fire on 21st March, have been added to the list of buildings destroyed by fire on 21st March, 1915, by the Architectural Society of France.

Following the report of the Committee on the Water Supply of the City of London, the decision has been made to construct a new water supply system for the City of London, and to increase the capacity of the existing system. The new system will be constructed in three stages, and will involve the construction of a new water supply system for the City of London, and the construction of a new water supply system for the City of London.

### PROFESSIONAL AND TRADE SOCIETIES.

**GLASGOW INSTITUTE OF ARCHITECTS.**—The annual general meeting of the Institute was held on Wednesday in the rooms, Elnbank Crescent, Glasgow, Mr. John Watson, F.R.I.B.A., president, in the chair. During the year the Practice Committee devoted much time to the negotiations in connection with the regulations for entering into and carrying out building works in Scotland, and also with regard to the preparation of the mason work mode. Certain points are still under negotiation with Sir George Askwith.

**THE LONDON SOCIETY.**—The fourth annual report of the Council and Executive Committee of the London Society, to be presented at the meeting to be held to-morrow (Thursday) evening at the Royal Society of Arts' Room, states that the efforts of the society have been mainly concentrated upon the work being done on the Development Plan of Greater London. This has proved to be a monumental piece of work. The society has now seven architects steadily at work under the direction of gentlemen who have given up much of their time for this purpose. When Mr. Lovell (now Captain Lovell) temporarily resigned from the secretaryship, Mr. George Drysdale became honorary acting secretary for the work on the plan, but, owing to continued ill-health, he was obliged to leave London in the early summer. Since then Mr. A. E. Richardson has had entire control, and the society is much indebted to him for the energy and skill he is expending in co-ordinating the immense amount of valuable information to be shown on the plan. The society are working in cordial co-operation with the Royal Institute of British Architects. They have also been accorded the full sympathy and assistance of the borough councils, and particularly the co-operation of Colonel R. C. Hellard, C.B., of the London Traffic Branch of the Board of Trade. The cost of the plan will be about £1,000, of which at least £100 has still to be raised. A special sub-committee has been appointed to watch the Bill now before Parliament, seeking powers to strengthen Charing Cross Bridge. The artistic result, so far as can be gathered from the published particulars, would be nothing less than deplorable; and, as the scheme provides for no road bridge, and there seems no possibility of completing the work for the duration of the war, the society intends to use every means within their power to oppose it. The cost of the scheme is estimated at £150,000. The Borough Books Committee recommend that the scheme be suspended for the duration of the war. It is hoped, now that the days are lengthening, to arrange for the reading of some papers connected with the objects of the London Society. Mr. Alfred Moor-Radford will read a paper on "Kensington Past and Present" on Friday, the 17th inst., and it is hoped that papers will be read during the spring and summer by Mr. Arthur Crow, Mr. W. R. Davidge, and Mr. Lawrence Chubb. An appeal is made to friends to obtain new members and more financial assistance to carry out the objects and aims of the society.

The annual congress of the Tramways and Light Railways Association will be held in London on Friday, June 30.

The Local Government Board have sanctioned a loan of £1,200 for road repairs to the rural district council of Thingoe.

The infirmary at Arbroath has been demolished and rebuilt at an outlay of £14,000. The architect was Mr. Hugh Gavin, of that town.

The death is announced, at the age of 86, of Mr. John Wormell, founder of the firm of W. J. and R. Wormell, slating contractors, Coventry.

Second-Lieut. George Brownlie-Browne, 10th Black Watch, son of Mr. G. Washington Browne, architect, Edinburgh, has been killed in action in France.

The Manchester Corporation accepted with thanks on Wednesday the gift from Miss Anna Phillips of a choice collection of cloisonné ware for the Art Gallery.

The Bangor Urban Council have granted a bonus of £50 to their surveyor, Mr. H. C. Bell, for preparation of plans in connection with the Gasworks Provisional Order.

### CHIPS.

Mr. John Hugh Watkins, quantity surveyor, has been admitted to the livery of the Turners' Company.

Mr. J. Talbot, for many years assistant county surveyor of Westmeath, died last week, aged ninety-six.

It is proposed to make extensions to Benwell Towers, Newcastle-on-Tyne, the palace of the Bishop of Newcastle, at an estimated cost of £1,500.

The Lichfield City Council have adopted the recommendation of the finance committee to increase the salary of Mr. P. A. Benn, their surveyor.

The death is announced of Mr. John Bacon Hutchings, of Louisville, Kentucky, president of the Louisville Chapter of the American Institute of Architects.

The rural district council of Ballymena have received the sanction of the Local Government Board to a loan of £800 for carrying out a sewerage scheme for the village of Culley-backey.

Mr. Charles H. Wright, surveyor to the Barrow-upon-Soar Rural District Council, has been appointed highway surveyor to the St. Columb, Cornwall, Rural District Council, at a salary of £65 per annum.

Chelmsford Town Council have requested the borough surveyor, Mr. P. T. Harrison, to prepare plans for a proposed refuse destructor, but have intimated that this work is not to take precedence over the sewerage scheme he has in hand.

Mr. Thomas Conolly, of Fernville, Glasnevin, Co. Dublin, head of the firm of building contractors, Messrs. W. Conolly and Son, Upper Dominick Street, Dublin, has been appointed to the commission of the peace for the County of Dublin.

The new town hall at Wallasey, building work upon which was recently stopped, is to be equipped by the corporation for use as a military hospital. The War Office have accepted the patriotic offer of the corporation.

The town council of Huddersfield have approved three sets of plans prepared by the borough engineer, Mr. A. P. Horsley, for the erection of artisans' dwellings, and he has received instructions to prepare the necessary specifications.

The Octavia Hill Memorial Hall in St. Katherine's Row, Notting Hill, was opened by Princess Louise the other day. It contains on the ground floor a large hall, on that above a clubroom, and bathrooms and kitchens are provided.

Official accounts of the Greenwich Hospital and Travers Foundation show that during the year 1914-15, owing partly to the strike and later to the war, only £116 was spent on the rebuilding scheme, as against £23,666 in the two previous years.

It was reported to last week's meeting of the Surbiton Urban District Council that the transfer of the council's electricity undertaking to Callender's Cable and Construction Co., Ltd., had now been completed, the purchase price being £51,732.

The Local Government Board have sanctioned the loan to the corporation of Derby of £1,800 for extensions of the electricity undertaking. Subject to the consent of the Treasury, the corporation propose to raise altogether £6,800 for the purpose.

In all their blocks of tenement dwellings the Liverpool Corporation have but a single room to let. On the waiting list for tenants are the names of 400 applicants. In the Everton district, especially, as many as four families are housed in cottages designed for but one family.

In an address on the water supply of Belfast, delivered before the Rotary Club of that city, Mr. F. W. McCullough, J.P., engineer to the Belfast Water Commissioners, stated that when the Mourne scheme is complete the city will enjoy a total supply of 33,000,000 gallons a day. The projected Silent Valley storage reservoir in the Kilkeel Valley will store 3,000,000,000 gallons, and will form one of the largest artificial storage reservoirs in the United Kingdom.

Shortly before noon on Thursday a well-known builder and contractor, Mr. James Evans, of 49, Nelson Street, Norwich, was found hanging dead in one of his workshops at the rear of his residence. The body was suspended from a rafter stay by a stout piece of scaffolding rope. The deceased, who was 61 years of age, resided with his mother, a lady of advanced age, and a housekeeper; and the shocking discovery was made by the latter.

To comply with the lighting regulations the London County Council has spent £2,000 on curtains for the windows of evening schools.

Mr. E. F. Baldwin, principal of the firm of Baldwin and Pennington, architects, Baltimore, Maryland, died at his home in that city, aged 78.

Good progress is being made with the new Government House at Bankipore, which is in course of erection, the building works of which are being carried out under the supervision of the Indian Public Works Department.

A Local Government Board inquiry will be held to-day (Wednesday), at Bedford, before Mr. A. G. Drury, inspector, as to an application from the Bedford Rural District Council for sanction to borrow £1,075 for laying a water main.

Respecting the proposed new road on the east side from Llanamlet to St. Thomas, via Pontrechwyl to Foxhole, the highways committee of the corporation of Swansea have instructed the borough surveyor to make a prescribed line providing for a 60-ft. roadway.

The Ebbw Vale Steel, Iron and Coal Co., Limited, have made extensive purchases of land and minerals on an area extending from Irthlingborough to Finedon. With a view to housing their workpeople the company are considering the building of 200 or 300 dwellings.

The town council of Southend-on-Sea have approved the plans of the borough surveyor, Mr. E. J. Elford, for the development of a number of roads in the area of the north-west town planning scheme, and the inclusion of other portions of the borough in the scheme is being considered.

Lieutenant Eric Henry Porter, 8th Battalion South Staffordshire Regiment, who was killed in action in France on February 14, was born in Brisbane, Queensland, in January, 1887, passed as an authorised surveyor in 1912, and was engaged in survey work on the Sierra Leone Government Railway.

According to the latest progress report of the Archaeological Survey of the Western Circle of Bombay, an interesting discovery has been made in Gwalior territory during the year in the identification of the ancient city of Padmavati with Pawaya, a small village nearly fifteen miles south-west of Darba station on the Midland section of the G.I.P. Railway.

The Roman Catholic Bishop of Galway is appealing for further funds for building a cathedral in the city of Galway. The plans and designs prepared by Professor Anthony Scott, A.R.I.B.A., of Upper Sackville Street, Dublin, show an edifice of Byzantine type of basilica. A considerable sum has been raised, and the interest upon it is accumulating. The Bishop proposes to build the first section as soon as £40,000 is in hand.

A special meeting of the Garden Cities and Town-Planning Association has been held at Gray's Inn Place to consider the report of the Departmental Committee on Land Settlement for Sailors and Soldiers, under the presidency of Mr. W. R. Davidge, A.R.I.B.A., F.S.I. The proposals of the committee were approved, and it was decided to write to the Board of Agriculture, placing at its disposal any expert knowledge the association had gained, and offering to help in any way the forwarding of the scheme.

The Bradford Corporation opened to the public on Saturday the twenty-third Spring Exhibition, at the Cartwright Memorial Hall. It comprises an excellent selection of works by modern British and Belgian painters and sculptors, including a notable series of water-colour drawings by Mr. Frank Brangwyn, A.R.A. A portrait of Mr. John Maddocks, late chairman of the Art Committee, by Mr. H. H. La Thangue, A.R.A., has been presented to the gallery by subscribers. A special feature is a representative collection of works by local artists.

Protest was ineffectually made at Friday's meeting of the Metropolitan Water Board against proposals for an addition of £1,493 to the salaries. It was stated that the salary list would amount on April 1 to £179,934. The Works and Stores Committee reported that a letter had been received from the Ministry of Munitions stating that, on grounds of urgent national interest, it had been found necessary to give directions for the immediate cessation of the work now being carried on by Messrs. Dick, Kerr and Co., Ltd., for the Board on the Littleton reservoir, the plant and labour being required for the production of war material. It was stated that the number of men employed on the works was 550 to 600.

## LATEST PRICES.

N.B.—All prices must be regarded as merely approximate for the present, as our usual sources of information are in many cases failing us.

### TIMBER.

Owing to stoppage of supplies all prices have advanced considerably.

IRON.		Per ton.	Per ton.
Rolled Steel Joists, English.	£20 5 0 to £21 5 0		
Compound Girders, Ordinary Sections.	22 0 0	23 0 0	
Wrought-Iron Girder Plates.	13 10 0	13 12 6	
Steel Girder Plates.	13 15 0	13 17 6	
Steel Sheets (Single or Double).	11 10 0	—	
Steel Strip.	10 15 0	—	
Basic Bars.	11 15 0	—	
Bar Iron, good Staffs.	15 10 0	15 15 0	
Do., Lowmoor, Flat, Round, or Square.	24 0 0	—	
Do., Staffordshire Crown.	14 0 0	14 10 0	
Boiler Plates, Iron—			
South Staffs.	8 0 0	8 15 0	
Best Suedshill.	9 0 0	9 10 0	
Angles, 10s., Tees 20s. per ton extra.			
Bullders' Hoop Iron, for bonding, £13 5s. to £13 15s.			
Do., galvanized, £20 to £20 10s. per ton.			
Galvanized Corrugated Sheet Iron—			
No. 18 to 20.	No. 22 to 24.		
6ft. to 8ft. long, inclusive gauge.	£29 0 0	£29 10 0	
Best ditto.	32 0 0	32 10 0	
Per ton.		Per ton.	Per ton.
Cast-Iron Columns.	£12 0 0 to £12 10 0		
Cast-Iron Stanchions.	12 0 0	12 10 0	
Rolled-Iron Fencing Wire.	8 15 0	9 5 0	
Rolled-Steel Fencing Wire.	7 15 0	8 0 0	
Galvanized.	6 5 0	6 15 0	
Cast-Iron Sash Weights.	6 10 0	7 0 0	
Cut Floor Brads.	15 0 0	15 5 0	
Corrugated Iron, 24 gauge.	16 0 0	—	
Galvanized Wire Strand, 7 ply, 14 B.W.G.	14 5 0	—	
B.B. Drawn Telegraph Wire, Galvanized—			
0 to 8.	9 10 11	12 B.W.G.	
£10 10s. £10 15s. £11 0s. £11 5s. £11 15s. per ton.			
Cast-Iron Socket Pipes—			
3 in. diameter.	£7 5 0 to £7 12 6		
4 in. to 6 in.	7 0 0	7 2 6	
7 in. to 24 in. (all sizes).	7 7 6	7 12 6	
[Coated with composition, 5s. 0d. per ton extra.			
Turned and bored joints, 5s. per ton extra.]			
Per ton.		Per ton.	Per ton.
Cold Blast, Lillieshall.	137s. 6d. to 142s. 6d.		
Hot Blast, ditto.	100s. 0d. to 107s. 0d.		
Wrought-Iron Tubes and Fittings—Discount off Standard Lists L.o.b. (plus 25 per cent.)—			
Gas-Tubes.	583 pc.		
Water-Tubes.	55 "		
Steam-Tubes.	511 "		
Galvanized Gas-Tubes.	475 "		
Galvanized Water-Tubes.	45 "		
Galvanized Steam-Tubes.	374 "		

### OTHER METALS.

Per ton.		Per ton.	Per ton.
Lead Water Pipe, Town.	£39 10 0 to		
Country.	£40 10 0		
Lead Barrel Pipe, Town.	£40 10 0		
Country.	£41 10 0		
Lead Pipe, tinned inside, Town.	£41 10 0		
Country.	£42 10 0		
Lead Pipe, tinned inside and outside.	£44 0 0		
Country.	£45 0 0		
Composition Gas-Pipe, Town.	£42 10 0		
Country.	£43 10 0		
Lead Soil-pipe (up to 4 in.) Town.	£42 10 0		
Country.	£43 10 0		
(Over 4 in. £1 per ton extra.)			
Lead, Common Brands.	25 10 0	26 0 0	
Lead, 4lb. sheet, English.	31 17 6	32 2 6	
Lead Shot, in 28lb. bags.	24 15 0	—	
Copper sheets, sheathing & rods.	148 0 0	150 0 0	
Copper, British Cake and Ingot.	129 0 0	131 0 0	
Tin, English Ingots.	185 0 0	187 0 0	
Do., Bars.	186 5 0	188 5 0	
Pig Lead, in lwt. Pigs, Town.	33 12 6	34 12 0	
Sheet Lead, Town.	£39 0 0		
Country.	£40 0 0		
Refined White Lead.	47 15 0	—	
Refined Red Lead.	49 0 0	—	
Sheet Zinc.	130 0 0	—	
Solder.	90 0 0	100 0 0	
Old Lead, against account.	29 5 0	—	
Tin.	10 5 0	—	
Cut nails (per cwt. basis, ordinary brand).	1 0 0	—	

\* For 5 cwt. lots and upwards.

## I BUY

## SCRAP METALS

ARTHUR P. COLLINS, Snow Hill, BIRMINGHAM.

Phone: Central 1020. Telegrams: "Metalise, Birmingham."

Bankers: The National Provincial Bank of England, Ltd., Bennett's Hill, Birmingham.

### SLATES.

in. in.		£ s. d.	per 1,000 of
Blue Portmadoc.	20 x 10	11 2 6	1,200 at r. stu.
"	16 " 8	5 10 0	"
First quality	16 " 8	10 12 6	"
Blue Bangor.	20 " 10	11 5 0	"
"	20 " 12	11 7 6	"
First quality	20 " 10	11 0 0	"
"	20 " 12	10 12 6	"
"	16 " 8	5 10 0	"

in. in.		£ s. d.	per 1,000 of
Eureks unfading green.	20 " 10	15 17 6	"
"	20 " 12	18 7 6	"
"	18 " 10	13 5 0	"
"	16 " 8	10 5 0	"
Permanent Green.	20 " 10	11 12 6	"
"	18 " 10	9 12 6	"
"	16 " 8	6 12 6	"

### BRICKS.

(All prices net.)		£ s. d.	per 1,000 of
First Hard Stocks.	£2 0 0	0 per 1,000	alongside, in
Second Hard Stocks.	1 16 0	"	" [river
Mild Stocks.	1 14 0	"	"
Picked Stocks for			delivered at
Facings.	2 15 0	"	raily station.
Flettons.	1 16 0	"	"
Pressed Wire Cuts.	1 18 0	"	"
Red Wire Cuts.	1 14 0	"	"
Best Farnham Red.	3 12 0	"	"
Best R'd Pressed			"
Ruabon Facing.	5 0 0	"	"
Best Blue Pressed			"
Staffordshire.	3 15 0	"	"
Ditto Bullnose.	4 0 0	"	"
Best Stourbridge Fire-			"
bricks.	4 0 0	"	"
2 1/2 in. Best Red Ac-			Net, delivered in
crington Plastic.	4 10 6	"	full truck loads
Facing Bricks.			in London.

3 1/2" Acerrington Best Red Plastic Facing Bricks	£2 10 0	
3 1/2" ditto Second Best Plastic ditto	2 2 6	
Ditto Ordinary Secondary Bricks	1 11 3	
Ditto Plastic Engineering Bricks	1 17 6	
Sewer Arch Brick, not more than 3 1/2 in. thickest part.	2 0 0	
3 1/2" Chimney Bricks fit for outside work	2 6 0	
3 1/2" ditto ditto through and through	2 0 0	
3 1/2" Beaded, Ovolo and Bevel Jambes; Octagons; 2 1/2" and 3" radius Bullnoses; Stock patterns.	3 7 6	
Acerrington Air Bricks, 9" x 2 course deep, each	0 0 6	
Ditto ditto 9" x 1 course	0 0 3	
Acerrington Chamber Arches—		
3 course deep 4 1/2" soffit, per foot opening.	0 1 3	
4 " 4 1/2" " " " " " "	0 1 8	
5 " 4 1/2" " " " " " "	0 2 1	
6 " 4 1/2" " " " " " "	0 2 6	
3 " 9" " " " " " "	0 2 1	
4 " 9" " " " " " "	0 2 11	
5 " 9" " " " " " "	0 3 6	
6 " 9" " " " " " "	0 4 6	

Net free on rail, or free on boat at works.

### GLAZED BRICKS.

HARD GLAZES (PER 1,000).		White, Ivory, and	Best.	Buff, Cream, and	Other	Second
		Seconds.		A Bronze, Colours.		Colours.
Stretchers—	£12 7 6	£11 7 6	£13 17 6	£17 17 6	£12 17 6	
Headers—	11 17 6	10 17 6	13 7 6	17 7 6	12 7 6	
Quoins, Bullnose, and 4 in. Flats—	15 17 6	14 17 6	17 17 6	21 7 6	16 7 6	
Double Stretchers—	17 17 6	16 17 6	20 17 6	24 7 6	18 7 6	
Double Headers—	14 17 6	13 17 6	17 17 6	21 7 6	15 7 6	
One side and two ends, square—	18 17 6	17 17 6	21 17 6	26 7 6	19 7 6	
Two sides and one end, square—	19 17 6	18 17 6	22 17 6	26 17 6	20 7 6	
Splays and Squints—	17 7 6	16 7 6	21 17 6	24 17 6	17 17 6	
Plinth and Hollow Bricks, Stretchers and Headers—						
5d. each 4d. each 6d. each 6d. each 5d. each						
Double Bullnose, Round Ends, Bullnose Stops—						
5d. each 4d. each 6d. each 6d. each 5d. each						
Rounded Internal Angles—						
4d. each 3d. each 5d. each 5d. each 4d. each						

### MOULDED BRICKS.

Stretchers and Headers	8d. each	8d. each	8d. each	8d. each
Internal and External Angles—				
1/2 each 1/2 each 1/2 each 1/2 each				
Sill Bullnose, Stretchers, and Headers—				
5d. each 4d. each 5d. each 6d. each 5d. each				
Majolica or Soft Glazed Stretchers and Headers.	£22 17 6			
Quoins and Bullnose.	27 17 6			
Compass bricks, circular and arch bricks of single radius £5 per 1,000 over above list for their respective kinds and colours.	Not exceeding 9 in.			
Camber arch bricks, any kind or colour, by 4 1/2 in.	by 4 1/2 in.			
1s. 2d. each bricks, any kind or colour, by 2 1/2 in.	by 2 1/2 in.			
Stretchers cut for Closers and Nicked Double Headers, £1 per 1,000 extra.				
These prices are carriage paid in full truck loads to London Stations.	s. d.			
Thames Sand.	7 6	per yard, delivered.		
Pit Sand.	7 0	"		
Thames Ballast.	6 0	"		
s. d. s. d. Per ton.				
Best Portland Cement.	36 0	to 41 0	delivered.	
Ground Blue Lias Lime.	21 0	per ton, delivered.		
Exclusive of charge for sacks.				
s. d. s. d. Per yard.				
Grey Stone Lime.	13 6	to 14 0	delivered.	
Stourbridge Fireclay in sacks 27s. 0d. per ton at railway station.				

### STONE.

Red Mansfield, in blocks	per foot cube	£0 2 4
Darley Dale, ditto	"	0 2 6
Red Corsehill, ditto	"	0 2 6
Clooseburn Red Freestone, ditto	"	0 2 2
Ancester, ditto	"	0 1 11
Greenshill, ditto	"	0 2 0 1/2
Beer Stone, delivered on rail at Sexton Station	"	0 1 1
Ditto, delivered at Nine Elms Station.	"	0 1 7 1/2
Chilmark, ditto (in truck at Nine Elms).	"	0 1 10 1/2
Hard York, ditto	"	0 2 0
Do. 6 in. sawn both sides, landings, random sizes.	per foot sup.	0 2 8

\* All F.O.R. London.

Do. do. 3 in. slab sawn two sides, random sizes.	per foot cube	£ s. d. 0 1 3
Bath Stone. Delivered in railway trucks at Westbourne Park, Paddington (G.W.R.), or South Lambeth (G.W.R.).	"	0 1 7 1/2
Delivered in railway trucks at Nine Elms (L. & S.W.R.).	"	0 1 8 1/2
Delivered on road waggon at Nine Elms Depot.	"	0 1 9 1/2
Portland Stone—Brown Whitbed in random blocks of 20 ft. average, delivered in railway trucks at Westbourne Park (G.W.R.), South Lambeth (G.W.R.), or Nine Elms (L. & S.W.R.).	"	0 2 5 1/2
Delivered on road waggon at Nine Elms Wharf or Nine Elms Depot.	"	0 2 6 1/2
White Buschbed—2d. per foot cube extra.		

### TILES.

s. d.		Divrd. as
Plain red roofing tiles.	42 0	per 1,000 ry. so.
Hip and Valley tiles.	3 7	per doz.
Brosely tiles.	50 0	per 1,000
Ornamental tiles.	52 6	"
Hip and Valley tiles.	4 0	per doz.
Ruabon red, brown, or brindled ditto (Edwards).	57 6	per 1,000
Ornamental ditto.	60 0	"
Hip tiles.	4 0	per doz.
Valley tiles.	3 0	"
Selected "Perfecta" roofing tiles: Plain tiles (Peake's).	46 0	per 1,000
Ornamental ditto.	48 6	"
Hip tiles.	3 10 1/2	per doz.
Valley tiles.	3 4 1/2	"
"Rosemary" brand plain tiles.	48 0	per 1,000
Ornamental tiles.	50 0	"
Hip tiles.	4 0	per doz.
Valley tiles.	3 8	"
Staffordshire (Hauley) Reds or brindled tiles.	42 6	per 1,000
Hand-made sand-faced.	45 0	"
Hip tiles.	4 0	per doz.
Valley tiles.	3 6	"
"Hartshill" brand plain tiles, sand-faced.	45 0	per 1,000
Pressed.	42 6	"
Ornamental ditto.	47 6	"
Hip tiles.	4 0	per doz.
Valley tiles.	3 6	"

### OILS.

Rapeseed, English pale, per tun	£28 15 0 to £29 5 0
Ditto, brown.	25 15 0
Cottonseed, refined.	29 0 0
Olve, Spanish.	39 10 0
Seal, pale.	21 0 0
Cocowut, Coch.	46 0 0
Ditto, Ceylon.	42 10 0
Ditto, Mauritius.	42 10 0
Palm, Lagos.	32 5 0
Ditto, Nut Kernel.	35 0 0
Oleine.	17 5 0
Sperm.	30 0 0
Lubricating, U.S., per gal.	0 7 0
Petroleum, refined.	0 0 6 1/2
Tar, Stockholm, per barrel.	1 6 0
Ditto, Archangel.	0 19 6
Linseed Oil.	0 4 1
Baltic Oil.	0 4 4
Turpentine.	0 4 1
Putty (Genuine Linseed Oil).	per cwt. 0 12 0
Pure Linseed Oil.	
"Stority" Brand.	0 9 0

### GLASS (IN CRATES).

English Sheet Glass 15 oz.	21 oz.	26 oz.	32 oz.
Fourths.	6d.	6d.	7d.
Thirds.	5d.	6d.	7d.
Fluted Sheet.	6d.	7d.	—
Hartley's English Rolled Plate.	4 in.	3 in.	2 in.
	4d.	4d.	5d.

Figured Rolled.	White.	Tinted.
Rennosseine.	4d.	5d.
Roll Sheet.	4d.	—

### VARNISHES, Etc.

Per gallon.	
Fine Pale Oak Varnish.	£0 8 6
Pale Copal Oak.	0 10 0
Onnilac Copal Oak.	0 10 0
Superfine Pale Elastic Oak.	0 12 0
Fine Extra Hard Church Oak.	0 10 0
Superfine Hard-drying Oak, for seats of churches.	0 14 6
Fine Elastic Carriage.	0 12 0
Superfine Pale Elastic Carriage.	0 16 6
Fine Pale Maple.	0 10 0
Finest Pale Durable Copal.	0 18 6
Extra Fine French Oil.	1 1 9
Eggshell Flattening Varnish.	0 18 0
White Copal Enamel.	1 4 0
Extra Pale Paper.	0 12 0
Best Japan Gold Size.	0 10 0
Best Black Japan.	0 16 7
Oak and Mahogany Stain.	0 9 9
Brunswick Black.	0 8 0
Berlin Black.	0 16 0
Knottling.	0 10 7
French and Brush Polish.	0 10 7

A licence has been granted to the London & South Western Railway Co. to be situated near the station at Nine Elms, in the parish of St. Mary's, Surrey. The licence is for the purpose of erecting a building for the use of a railway station, and for the purpose of erecting a building for the use of a railway

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Effingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

Drawings of selected competition designs important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc., we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

Telephone: Gerard 291.

Telegrams: "Timeserver, E-strand, London."

## NOTICE.

Bound copies of Vol. CIX. are now ready, and should be ordered early (price 12s. each, by post 12s. 6d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLV., XLIX., L., LII., LIII., LX., LXI., LXII., LXIII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXVIII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., XCVII., XCVIII., XCIX., C., CI., CII., CIII., CIV., CV., CVI., CVII., and CVIII. may still be obtained at the same price; all the other bound volumes are out of print.

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VINCENT.—Yes.

T. R. C. Please send

J. H. S. We advise caution

AMBROSE.—The claim is not an unreasonable one, 2. Yes.

ECLES.—Miss May Morris's articles on "Church Embroidery," with illustrations, appeared in Vols. LXV. and LXVI., which can be sent you, post free, for 13s. 8d.

TO ALL AND sundry. To prevent disappointment, owing to restricted and later postal deliveries, it is not safe to wait till Tuesday morning to send us advertisements for the current week's issue. Many reach us after 3 p.m., at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order the BUILDING NEWS regularly of their newsagent or bookstall. With the present shortage of paper and probable still further rise in its price, it is futile to expect a new-agent to saddle himself or us with surplus unsold copies to oblige chance customers, on which, moreover, he or we have to pay heavy increasing carriage charges.

## TO ARMS!

4TH BATTALION, CENTRAL LONDON VOLUNTEER REGIMENT.

ORDERS FOR THE WEEK ENDING MARCH 11, 1916.

OFFICER FOR THE WEEK. Platoon Commander A. Girard.

NEXT FOR DUTY. Platoon Commander W. J. A. Watkins.

GENERAL PARADE. Saturday, March 11, at Putney Bridge Station, 3 p.m. sharp. Uniform, haversacks, and water-bottles.

SCHOOL OF ARMS. Tuesday, March 7, 6.45 p.m.

LECTURES. Tuesday, March 7, 7.15-8.15. Mr. R. J. Finch, F.R.G.S., "Map Reading."

Thursday, March 9, 5.45-6.45. Instructional Parade Company Commander, W. D. Bentley.

DRILLS AND PARADES. For details of all Drills and Parades, see notice board at Headquarters.

WEEK-END CAMPS. Parade at Headquarters, Saturday, March 11, at 2 p.m. sharp, for 2.25 train. For details see Orders for the Month. Transport from Station to Camp will be provided.

ENTRECHING PARADE.—Sunday, March 12 at Victoria Station (Indicator Board), 8.35 a.m. sharp for 8.50 a.m. train. Also at Cannon Street (Bookstall), 9.15 a.m. for 9.29 train. Uniform, haversacks, and water-bottles. Mid-day rations to be carried. Return to Victoria about 6.15 p.m. Railway vouchers will be provided.

NOTE. Attention is drawn to the fact that the Parade on March 25 will be for Battalion Drill and that every Volunteer is requested to make a special effort to attend.

By order,

MACLEOD YEARSLEY, Adjutant.

March 2, 1916.

## MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY (To-day).—Royal Society of Arts, "Optical Refinements in Warfare," by Charles R. Darling, 4.30 p.m.

Northern Architectural Association, 6, Highgate Place, Newcastle-on-Tyne, 4.30 p.m.

Manchester Society of Architects, Paper by J. A. M. Hunter, Lieut. R.E.B.A., 6.30 p.m.

THURSDAY (To-morrow). Royal Institution, "Recent Excavations in Mesopotamia," by Professor L. W. King, 3 p.m.

The London Society, Fourth Annual Meeting, Royal Society of Arts Hall, 5.30 p.m.

FRIDAY (March 10).—Town-Planning Institute, "Width and Allocation of Space and Roads," by F. Longstrech Thompson, B.Sc., 8 p.m.

Glasgow Architectural Craftsmen's Society, "Economy in Building," by Peter Lyall, 7.45 p.m.

MONDAY (March 13). Royal Institute of British Architects, Special General Meeting, to consider a proposal that the by-laws be suspended so that the Council, Standing Committees, and Hon. Auditors remain in office until June 30, 1917, 4.30 p.m.

THURSDAY (March 16). Society of Architects, Extraordinary Meeting (members only), to alter the Articles of Association, 3.15 p.m.

Royal Society of Arts, "The Work of the Imperial Institute for India," by Professor Wyndham R. Dunstan, C.M.G., 4.30 p.m.

FRIDAY (March 17). Institution of Municipal and County Engineers, "Some Conclusions on Housing Workers" (the Chadwick Lecture), by W. E. Riley, F.R.I.B.A., Superintending Architect, L.C.C., Burlington House, W., 5.30 p.m.

The East Sussex County Council, on the advice of their surveyor, Mr. F. J. Wood, propose to expend £15,000 on tarring the surfaces of main roads during the ensuing year.

The Rural District Council of Reigate have decided to widen Bonchurch Bridge to 36 ft. in the clear and on the west side, which will permit of the present footpath being continued over this bridge.

Plans have been prepared by the city architect, of Dublin, Mr. C. J. MacCarthy, for the erection of houses on North Lotts Street and Newfoundland Street areas, at an estimated cost of £219,781.

A new pump-house, with sulphur and hydro-electric baths, is about to be added to the Spa Wells, at Liscannavarna, from plans by Professor William A. Scott, M.S.A., of Mountjoy Square, Dublin.

Mr. Temple Moore, F.R.I.B.A., has visited Peterborough Cathedral in connection with the proposed memorial to Nurse Cavell, who was at one time a pupil at a school in the Minster Precincts. Mr. Moore was met by the Dean and Bishop Clayton, and it was decided that the memorial should take the form of a profile medallion of Nurse Cavell on a tablet to be affixed to the sixth pier from the west front on the south side of the nave.

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## TENDERS.

\*. Correspondents would in all cases oblige by giving the addresses of the parties tendering—at any rate, of the accepted tender: it adds to the value of the information.

ADWICK-HESTLETT. For improvement to White Cross Bridge, for the urban district council.—Storey, A., 114-17s., in addition to original contract (accepted).

BALLYSHANNON.—For drainage of cottages at Erne Street, Ballyshannon, for the rural district council:—

Dundas, J. (accepted) .. .. £140 0 0

BEXHILL. For the supply of tan-housing, for the town council. Accepted tenders:—

Fan-housing for induced-draught plant:—

Sturtevant .. .. £155 0 0

New pump:—

Weir, G. J. .. .. 82 0 0

BIRMINGHAM.—For the installation of an electrically-driven refrigerating plant at the Western Road institution, for the guardians:—

Linde British Refrigeration Co., Ltd., 35, Queen Victoria Street, E.C., .. .. £150 0 0

(Recommended for acceptance.)

BRITAIN, DUBLIN. For painting, etc., at Crookings sanatorium, for the corporation tuberculosis committee:—

O'Neill and Son .. .. £827 0 0

Dockrell, Sons and Co. .. .. 690 0 0

Keatinge and Son, Ltd., .. .. 542 10 0

Municipal Workshops, Dublin .. .. 456 0 0

Accepted.

CARDIFF.—For supply of 60 tons of timber at the cemetery, for the Parks Committee:—

Kestell, J. M., 39s. per ton (accepted)

CASTLEFORD.—For carrying out alterations at the premises of the Castleford and Alton Mutual Industrial Society, Ltd., Carlton Street, Castleford, Mr. A. Hartley, County Chambers, Castleford, architect. Accepted tenders:—

Builder work: Walker, R., and Sons

Joiner work: Greaves, G. E.

Slater work: Edison, S.

Plasterer work: Beighton and Robshaw

Plumber work: Sweeting and Sunderland.

All of Castleford.

CHILSWORTH. For the supply of refined tar, in accordance with the specification of the Road Board, required for the purpose of tarring roads for one year from Feb. 1, for the town council:—

Crow, T., and Sons, Abbey Crook Wharf, West Ham, 3d. per gallon (accepted).

COWES, I.W. For supply and erection of two exhausters and engines at the gasworks, for the urban district council:—

Waller, G., and Son (accepted) £890 0 0

LEEK. For supply of a new crankshaft for Diesel engine, for the urban district council:—

Willans and Robinson (delivery in eight or ten weeks) (accepted) £570 0 0

LEYTON. For supply of a feed-water heater, for the urban district council:—

Heater fed with exhaust steam

Wright's Forge and Engineering Co., Ltd., Tipton .. .. £160 0 0

Boyles, Ltd., Manchester .. .. 84 5 0

Bright-side Foundry and Engineering Co., Ltd., Camberwell .. .. 72 1 0

Holden and Brooke, Ltd., Manchester (accepted) .. .. 55 0 0

Heater fed with live steam:—

Wright's Forge and Engineering Co., Ltd., .. .. 6 0 0

Bright-side Foundry and Engineering Co., Ltd., .. .. 45 0 0

Boyles, Ltd., .. .. 41 12 6

Holden and Brooke, Ltd. (accepted) .. .. 40 0 0

LONDON.—For the supply of (A) 500 driving-wheel

tires and (B) 250 pony-wheel tires, for the London County Council:—

A. B.

Cannell, Laird, and Co., Ltd., Sheffield—

£38 10 0 per ton. £55 10 0 per ton.

Bessemer, H., and Co., Ltd., Bolton—

£8 10 0 per ton. £5 10 0 per ton.

(less 2½ per cent. discount) (less 2½ per cent. discount)

\* Accepted for each item; amount of contract, about

£2,000.



# THE BUILDING NEWS

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Architectural Work in India: The Prince of Wales Museum of Western India, Mr. G. Wittet, Architect; Post Office at Allahabad, and Presbyterian Church at Jubbulpore, Mr. J. Begg, F.R.I.B.A., Architect; Quarters for the Directors	

### Strand, W.C.

of the Pastern Institute, Bonn. Mr. W. L. Staupé, Architect.	
The National Library of Wales, Aberystwyth, Port of Pavilion at West End of North Elevation of Library Hall. Mr. Sidney K. Green Lade, F.R.I.B.A., Architect.	
Gorsewood, Hook Heath, Woking, with plans. Messrs. Jubb, Messer and Poulter, Architects.	
Shop Fronts, Royal Assurance Building, Exchange Street, Manchester. Mr. P. J. Westwood, F.R.I.B.A., Architect.	
The Legitimate Use of Colour in Decoration. Portrait of Mr. Godfrey Giles, F.I.B.D., Main Hall of Central Criminal Court; The Drawing Room, Eastwick Park; A London Dining Room.	

### ARCHITECTURAL WORK IN INDIA, 1914-15.

The last annual report of Mr. J. Begg, F.R.I.B.A., the Consulting Architect to the Government of India, is less numerously illustrated than its predecessors in some previous years, is in other respects perhaps more interesting than some which have embraced more prolific periods. Naturally, the activities of the period covered appealing most to the popular mind have been those concerned with the building of the new Indian Capital, Delhi; but the time has hardly come yet to include any detailed references thereto in the Government Report. Moreover, a special organisation has been temporarily created to deal with it, and its progress may be regarded as a thing apart from general architectural progress in India, albeit its preponderance cannot fail powerfully to affect the work of the country generally. Meanwhile, it is gratifying to learn from Mr. Begg that during the past few years there have been certain very decided signs of progress all over India, and no sign of any slowing of that progress so far as the year under report is concerned. The greater attention to "finish" which the architect has induced has led to a marked improvement in the quality of what is, after all, the staff of life to building in almost all countries, namely, the ordinary building brick. It is becoming more and more rare to find the bad-coloured, bad-shaped (because badly mixed and burnt) and oversized brick which used to be all too common. Similarly, there are a hundred small but significant building sins which show a tendency to disappear, to the great benefit of building and, therefore, of architecture. Such are the many wrong uses of pointing, which tended not only to defeat the architect's aims as to surface textures but to conceal inferior work and to produce a meretricious appearance of finish, incorrect and slovenly jointing of stonework, etc., and, by no means least, the many sins of the brush both in the matter of paint and of colour wash. There is room for improvement in carpentry and joinery, but Mr. Begg says there is no going back in these trades. In ironwork, both wrought and cast, there have been advances in certain of the larger towns. One could wish for greater improvements in the design and manufacture of roofing tiles and also for the introduction of materials that would render the use of corrugated iron as a roof covering no longer necessary. The use of such materials as "Poliite," "Eternit," etc., has been steadily increasing, but these, Mr. Begg thinks, though preferable to iron, are not so greatly superior from the æsthetic point of view as to enable it to be said that a

solution has been found. In certain places in the Hills it is possible to find very good slates, but the use of these is attended by two great drawbacks. First, there is the high cost, directly owing to the limited demand for the material and indirectly to the weight, necessitating the use of heavier roof scantlings. Second, from the low standard of skill in splitting and fixing, it is difficult to obtain a thoroughly reliable slate roof. The development of the iron and steel trade in India may in course of time solve some of the first of these difficulties by enabling the use of steel roof construction to be extended—as it may open up possibilities in many other directions in building construction.

Decided improvements are also to be observed in the interior finish of buildings. Especially is this so with regard to the ceiling. The choice is no longer one between "ceiling cloth" and matchboarding. Asbestos sheets can be used with good effect—but, best of all, the plaster ceiling is no longer so difficult to obtain as of old in most localities. Greater facilities, too, are now encountered for obtaining a better class of locks and all kinds of door and window furniture, though there is still ample room for improvement in this direction. Recently some progress has been made in the introduction of steel windows and doors in substitution for the old wooden ones, which, however well made at first, soon yield to the severity of the climate in most parts of India and become a source of perennial irritation to the occupier of buildings. These steel doors and windows are being extensively used in the Lady Hardinge Women's Medical College and Hospital at Delhi, and it is believed they will also be a feature in the buildings of the new Capital.

So much for the "beggary elements" of architecture. As for the art itself, the greater extent to which the architect is consulted and his growing hold on the work of Government in the country—these are attested to by the increase in the number of architects in Government employ which a few years has shown. Mr. Begg went to India in 1901 as the first qualified, that is, trained architect in Government service. The list he gives in his report includes the names of twenty-two such now in Government service. Of these, 75 per cent. have been brought out during the past five years. So that the quantity of work of a certain high standard that is put out annually is now very much in excess of what it has ever been before. As to the quality, there is no doubt that the standard is being every year pushed higher.

Of the four buildings we illustrate, the central block of the "Prince of Wales

Museum of Western India" Mr. Begg regards as the most important mark of progress which has appeared for many years. In 1908 a competition was instituted—open to architects resident in India, to whom were added four selected and invited British architects, and it was won by a member of the former class with a very able design in an adaptation of a phase of Byzantine. Though the planning and general arrangements of this design were universally admitted to be the most suitable of all amongst those submitted, yet so strong a feeling of distaste to the unfamiliar style of the exterior was manifested that it was proposed to reject the design in favour of one of the others. None of the others, however, were considered to fulfil the requirements so well in point of planning nor to be capable of construction without considerably greater expenditure. Eventually it was decided to retain the chosen plan, and that its author, Mr. G. Wittet (he having meantime been appointed Consulting Architect to the Bombay Government) should undertake the construction as part of his ordinary duties, remodelling the elevations in a style based on indigenous work, an example of such a style of design being seen in the new Bombay General Post Office then approaching completion. The portion of the Museum now finished is that for the housing of the Art and Archaeology collections. It is intended ultimately to be flanked by two other buildings for Industries and Natural History respectively. It is regarded by Mr. Begg as a highly successful piece of work and specially interesting for the admirable way in which forms and architectonic ideas of indigenous character have been employed without sacrifice either of its modernness and suitability to its purpose or of its consonance with the true spirit of Indian work. This is living work and no experiment in antiquarian revivalism, no counterfeiting of antiquity, but a model of what an Indian modern public building should be.

The Post Office at Allahabad is from Mr. Begg's own design, which provided for a large sculptured coat of the Royal Arms over the central portion of the main front, and the question was referred to him as to whether this should not be omitted. He strongly recommended that it should not, and the work has accordingly been put in hand. A Post Office, as a repository to which the public entrusts its letters and other articles of value, depending for its efficiency, as does the entire institution of the Post Office, so much extent upon public confidence in its integrity, should bear such special marks of its officially authorised commission as are calculated to impress the most ignorant and suspicious. There seems no better

means to this end than by stamping on it the seal of the King-Emperor himself, as it were, by the use of the Royal Arms. The building is double storied, having one large main hall on the ground floor, with small tiffin rooms and lavatories. The first floor is occupied by Postmaster's quarters, Office and Inspecting Officers' quarters, making three sides of a courtyard, the fourth side being reserved for the kitchen. The plinth and six-foot height of superstructure is faced with stone, the rest of the building being plastered, stone colour, so that no distemping is required. The cost of the main building is Rs. 1,17,319, whilst the cost of the whole project amounts to Rs. 1,55,131. The Presbyterian Church at Jabulpore is also from Mr. Begg's design "to his mind," he says, a successful work in one particular at least—viz., that it could hardly be mistaken for anything but what it is—a Presbyterian Church.

The Quarters for the Director of the Pasteur Institute, Rangoon, is a double-storied building with the exception of the entrance porch, and is raised on a plinth 2½ ft. above ground level. The walls are of brickwork, being distemped in the main rooms on the ground floor and whitewashed elsewhere; the exterior is flush-pointed. On the ground floor buff and grey English floor tiles with terra cotta skirting tiles 6 in. deep have been laid in the drawing, dining and ante-room and hall, and cement concrete elsewhere; the upper floor is of 1 in. t. and g. teak planks throughout. The roof is of Marseilles tiles with a painted teak ceiling throughout. The building is provided with sanitary and electrical fittings throughout.

There are several other illustrations we should have been glad to have given had space permitted, notably one of an interesting reinforced concrete bridge—that at East Bagul, United Provinces—though it is not an architect's work, and some might be inclined to think its extreme and uncompromising plainness rendered it unlikely to attract the architect's attention. On the contrary, it is just for that reason that Mr. Begg has included it. In spite of its plainness, may because of it, it attains a certain measure of unquestionable beauty. It has no feature or detail that is not introduced for a definite purpose or that is not the outcome of necessities of construction or use, and so it comes nearer to the highest ideal of architectural art than many a work covered with "mouldings, features, and ornaments," and full of "architectural pretensions." Its artistic merits may be somewhat unpremeditated and unconscious, but they are none the less positive for all that. Mr. W. L. Stamp is the architect.



At the meeting of the West Kent Sewerage Board, held at Swancombe on Friday, it was agreed to invite tenders for work in reinforced concrete for the new river jetty at the outfall works, originally proposed to be constructed in timber, which has received the sanction of the Local Government Board. Alderman Jones, chairman of the works committee, pointing out that under existing circumstances it was doubtful whether they could get timber at all.

A fourth discovery of bones in a casquet, bearing an inscription that they are relics of Buddha, has been made recently during excavations being carried on by the Archaeological Survey in India among the ruins in the Rawal pondi district, on the site of the ancient Taxila, famous in the time of Buddha as the chief university town of India. The first discovery of this class of casquet was upon the borders of Nepal many years ago, the second near Peshawar in 1909 and the third at Mirpur Khas, in Sindh, in 1911. It has been asserted that after the cremation of Buddha the bones were distributed among his disciples, and carried by them to a number of distant places.

## THE LEGITIMATE USE OF IMITATIONS IN DECORATION.\*

By GODFREY GILES, F.I.B.D.

Whether imitation broadly viewed is legitimate or not is largely a matter of opinion. Who is the authority?

Some people may argue (and in many cases quite justly) that imitation is not legitimate, and it may be very bad form, for instance, I do not agree with the man who wears a gilt brass watch chain—if he cannot afford a gold one, a silver or steel one would be in better taste, to say the least. But in decoration I think I can show that imitation is quite legitimate, and in many cases desirable (one might say necessary), to obtain certain results and effects. To begin with, almost all decorative work is imitation in

5. When required for theatrical or temporary use.

Imitations in many cases are machine productions of materials produced by hand, whose artistic merit was the result of the skill and workmanship of the craftsman producing them.

The competitive age in which we live is largely responsible for the machine-made article, which usually lacks the feeling of the original producer.

The machine-made goods are again imitated, the price is cheapened, regardless of what is being copied, each time losing in design and artistic merit, until it frequently happens that the article produced is only a burlesque of the original.

This thought was, no doubt, in Ruskin's mind when he spoke of the world in these



MR. GODFREY GILES, F.I.B.D., THE AUTHOR OF THE PAPER.

one form or another. Imitation is the basis of most decoration so called, especially as it is practised in London at the present time, and I will give you a few legitimate reasons for the use of imitations:—

1. The cost of the real article in many cases makes the use of it out of the question.

2. Imitations, when faithfully copied, often lead to the appreciation of the real article.

3. The production of some articles which have been applied to, or used in, decoration has ceased, and in some cases the art of making has been lost.

4. The imitations of the best periods of the antique is not only legitimate, but useful, being an education not only to the craftsman, but often to the purchaser, and a source of pleasure to the lover of a refined home.

\* From a paper read before the Incorporated Institute of British Decorators. We are indebted to our contemporary *The Decorator*, for all the illustrations but one, and full report.

later days having gone on the wrong track, holding that science has been used to inculcate the unchecked and competitive pursuit of material wealth.

The genius of originality is rare; it is an in-born part of our nature to imitate (that is how babies first learn), but let us be careful to select the best examples, and endeavour to produce them as nearly as possible as the master-hand would have done, and if price or competition has to be considered, better to adapt a simpler form of treatment, rather than endeavour to obtain an effect which may be pretentious, or incongruous and obviously a fraud.

I think I will take a few exceptions first, on the ground that the exception proves the rule, viz., paintings on ceilings and walls, executed on canvas or on the plaster work direct, such as sky subjects, with figures, emipids, etc. (a kind of work so often done on the Continent, and so comparatively rarely in this country); panels, such as any of you can

see in the new building of the Central Criminal Court of the Old Bailey, in many churches and in also some of the good private houses or mansions in this country.

Here is a photograph or sketch of such a painted ceiling executed by my firm at Eastwick Park, for the late Mr. William Keswick, who was the member for the Epsom division of Surrey. It is a beautiful room about 90 ft. long, and as you will see, the ceiling is divided into three, two square portions and one oblong. The enriched work is fibrous plaster, forming the framing or surround, to the painted panel to each section.

Painted or distempered ornament, or stencil work on ceilings and walls do generally not imitate anything, but are purely decorative, and when executed in pure style, and well done, give very charming results. Here, for instance, is a design in the Italian Renaissance

sent anything, but that is a *different matter*, and is a question of individual taste and I should not describe such work as *decoration*.

It is not a decoration, but merely a background for any decoration one may like to put upon it in the shape of pictures, armour, swords, etc., etc.

Decoration, I believe, means essentially putting things in order, arranging things in accordance with the requirements of those that use them, and in agreement with the physical qualities of the things dealt with; it means putting things as they should be. After some disarrangements or decay or damage, or even ordinary wear and tear in a house, a certain amount of restoration or re-decoration is necessary.

So decoration covers the whole field of the completion and maintenance of a building, and, of course, the greatest part of the work

with or without patterns, he very often either unconsciously or intentionally imitates something. This remark, that is to say as regards unconsciously, applies more particularly to persons who practise as decorators, but who really are not, in the true and professional sense of the word. For a decorator properly qualified and experienced knows perfectly well what effects he will produce or how to produce an effect he requires.

This knowledge is very essential when handling wallpapers, and I consider the "imitation" the decorator effects perfectly legitimate when carried out with the knowledge and skill, so that the imitation is really a good one and produces nearly as possible the artistic effect of the real article.

Take, for instance, a leather paper—here is one that resembles leather—and if a person cannot afford to have a hall, library, or billiard room hung with real leather, a good imitation, carried out well, will give a pleasing and artistic effect, as long as the remainder of the work in the room is treated in keeping with the particular kind of wall treatment in use.

Here is a so-called leather paper which I do not consider it legitimate to use. The imitation is too bad. When hung it does not suggest the effect or surface of leather, and in practice I have always refused to consent to the use of such a paper in rooms I have been entrusted with. Imagine this paper in a room with white paint (I have actually seen this). The result is neither pleasing nor pretty, certainly not artistic, and, therefore, in my opinion, not legitimate.

Some papers imitate canvas or jute—some tapestries. Some plain cloth, such as flock paper. Some represent cretonne.

My remarks in regard to the leather imitation apply exactly to these imitations of canvas, tapestries, cloths, cretonnes, etc.

If the imitation is good and well carried out by the decorator the imitation will surely give a good result; if not well carried out, it is not legitimate and becomes meaningless.

If one were hanging a real cloth, tapestry, or silk, or, in fact, any fabric, it would be tacked to the wall and finished off with a border, or braid, or gimp. Therefore the papered wall should be treated in exactly the same way, using a paper border representing a braid or gimp to hide the imaginary tacks. If not, paper the walls in a manner so as not to imitate any of these things.

Some wallpapers imitate tiles, marbles, woods, or stone.

I think the majority of the papers are bad imitations, and, therefore, not legitimate—a varnished paper not imitating anything is better, such as this one.

For tile imitation one should use a paper like this (plain tile), or this Salubra, either in plain tile effect or decorated like a decorated tile. This is the very best imitation to use where the cost of real tiles puts them out of the question.

We may and we must use imitation in decorating London houses. But there is surely room for wisdom in selection of the subjects or materials imitated.

Let us try and put as much meaning as possible into our work, and have reasons for what we do as far as possible.

If velvets or brocades are copied in wall papers, let them be used as the real materials would be used. If marble papers are used, let them be put where real marble would be out of place.

The imitation should always be carried out in the way, or for the purpose that the real would have been used.

The introduction of iron rods into walls and reinforced concrete into modern buildings, and the dispenses with a certain amount of the constructive work that was formerly necessary in previous days, and has been the architect or the decorator's duty to use for decorative purposes, and not for the constructive purpose only. When these features are introduced into the decoration, the architect or the decorator must be taken that they are correct and not imitations, but that they are imitations.



THE CENTRAL CRIMINAL COURT—MAIN HALL.  
Illustrating the application of Decorative Marble to Plane Surfaces.

sance style, which has a very pleasing result when hand painted on walls, either with or without mouldings to form panels, provided always that the whole place is carried out in the same style and in harmony.

This now brings me to my first illustrations of imitation.

This border is a printed paper, and is so produced as to imitate the painting or stencilling I have just been referring to.

This imitation I consider perfectly legitimate, as in many cases people cannot afford to have the work done by hand, and it is certainly better to have the walls papered, the panels being either some very soft, indefinite looking pattern, or quite plain, and formed of borders which are painted, but which give a pure correct result, rather than have the bare plain painted walls relieved by cheap, common stencil work, such as can be seen even to-day in some places or districts.

Of course, for inexpensive treatment of walls, one can have them simply distempered in plain colour schemes, which do not repre-

sent anything, but that is a *different matter*, and is a question of individual taste and I should not describe such work as *decoration*.

These surfaces are almost always formed of plaster, and it comparatively rarely happens that any change of form is required. The decorator's work must consist of efforts to apply texture and colour to these surfaces.

I said just now "*comparatively rarely*," because in the majority of cases, the plaster is left as it is and merely painted and papered, but in some cases, of course, mouldings, plain or enriched, are applied to the walls, formed of wood or fibrous plaster, to form panels in the Adams, Louis XVI., Georgian, or other styles, and dado rails applied to form dados, etc.

Where is the decorator to go for inspiration if he is not to imitate something? If he paints everything white he unconsciously, perhaps, produces the appearance of white marble or ivory. If he uses large surfaces of single colours he may give something of the effect of hanging cloth or tapestry.

When a decorator uses wallpapers, either

Two of the worst features I have in my mind is the fretwork arch and the "embossed ceiling." The one, I am glad to say, is practically dead, and the other only lingers in

the marble may be, or is, the real thing, but has the appearance of solid marble construction—as seen in this photograph of the Central Criminal Court.

mouldings, or bases of columns, there is the effect of solid gold: it is an imitation and not the real thing.

We cannot escape imitation in our work.



THE DRAWING ROOM, EASTWICK PARK, SHOWING HAND-PAINTED CEILING PANELS.



A LONDON DRAWING ROOM WITH MOULDINGS, ETC., APPLIED TO SURFACE OF PLASTER.

the marble—illa, or in some little country place.

To give a few other instances of imitation which are legitimate and illustrate the numerous methods decorators adopt to obtain effect, or results, take walls plated with marble, or they are only marble on the surface

Walls covered with wood panelling are not walls formed of panelling, such as they appear to be, although the panelling is, of course, not in itself an imitation.

It gold leaf is used in decoration, particularly when used in a bold, broad manner, such as "gilding in solid" the bay tiles,

An attempt to do so may be made when a new house is being built, but think what it would mean.

If walls are built of brick, then the bricks must appear: they must not be covered with plaster or any kind of paint or polish, unless one is used which has only the effect of adding



durability to an already sufficiently durable surface, or that is more easily kept clean than its natural surface. I have seen a house where the brickwork has been left exposed, not plastered or treated in any way, and good decorative effect has been obtained by the use of brick mouldings and the bricks themselves being laid at different angles, but think of the cost of such work. It has to be most beautifully executed and most carefully finished. I know a church, the interior simply being left in red brickwork—there the work was perfectly plain, merely pointed, and to mind not pleasing, because of its unfinished appearance.

Any alteration of colour that ensues must be accepted without modification or reconsideration if we are to avoid imitation. For if we modify the colour intentionally we shall certainly be likely to match some more beautiful material, and so suggest vast quantities

of dye wares may make this a useful and possibly even a popular suggestion. For instance when a room is being plastered, let the plaster be given a definite colour and made much of a fine quality that its own surface, polished perhaps, or finished with a transparent varnish has a pleasing effect for all time.

If thin partition walls are needed, then use slabs of freestone, instead of coke breeze slab of such ugly texture and colour that they must be coated with a plaster little less ugly, and then painted or prepared to make them passably durable and pleasing to look upon.

By avoiding the unnecessary in construction we may get some really interesting improvements in decorative effect. For instance, when really good building is done it is by no means necessary to have a skirting to a room. It is only to hide a badly made join between a badly laid floor and a badly

planned the interior of our buildings with a much colour and suggestion of beautiful thing as they will hold. Let us find ever, part of our homes full of reminiscences of the rich colours of nature, many of which at the best possible settings for our personal treasures.

Practice and study of effect in decorative materials and process as well as the decorator to avoid on the one hand the monotonous and insipid, and on the other the aggressive and exciting.

#### COMPETITIONS.

**PETER LE NEVE FOSTER PRIZE.** The prize of £10 and a silver medal, offered under the Peter Le Neve Foster Trust by the Royal Society of Arts, for an essay on "Zinc: Its Production and Industrial Applications," has been awarded to Mr. J. C. Moulden, A.R.S.M., M.Inst.M.M., of Searon Carrow, Co. Durham. Honourable mention has also been awarded to Mr. Ernest Alfred Smith, A.R.S.M., M.Inst.M.M., Deputy Assay Master of the Sheffield Assay Office, for his essay. The adjudicators, on whose recommendation the award was made, reported that the two essays above mentioned were distinctly superior to the others, several of which, nevertheless, were of interest and value. An essay by Mr. Ranji Das Vaishya, of Gwalior, Central India, contained a good deal of information with regard to the production and utilisation of the metal in the East Indies.

**ROYAL ACADEMY: THE LANDSEER PRIZE.** Miss Florence May Asher, daughter of Mr. J. W. Asher, of Nottingham, a former student at the local School of Art, has been awarded by the Council of the Royal Academy of Arts the Landseer prize for landscape, a two years' scholarship valued at £30 a year. Miss Asher took up studies at the St. John's Wood School of Art in September, 1912, where she gained a three years' free studentship of the Royal Academy of Arts. In December, 1915, as we announced at the time, the Committee of the R.A. awarded to her the first prize medal and £10 for painting two figures in the nude from life.

The location of Convention Hall, a building that forms part of Philadelphia's civic design programme, has been definitely decided. It will be at Twenty-second Street and the Parkway. An ordinance is to be passed that will empower the city government to proceed promptly in the construction of this building, for which a sum approximating \$1,400,000 is available.

The William Robinson Memorial Homes—a group of twelve aged miners' cottages—were opened at Hetton on Saturday afternoon by Sir Lindsay Wood, Bart. The homes are named after the late Mr. William Robinson, a well-known local miners' leader, and have been erected by all classes of workmen of the three Hetton collieries, at a cost of £2,200, the whole of which was in hand when the foundation stone was laid in July last.

The Bishop of Jarrow has consecrated a portion of the new cemetery which has been provided by the Whickham Urban District Council. The cemetery is situated at the Garden House, near Swalwell, and comprises 11½ acres, but at present only five acres have been laid out, at a cost of £5,300. The principal contractors were Messrs. Bowley and Scott, Dunston (boundary walls, Mr. J. W. Robson, Gosforth (laying out of paths, etc.), and Messrs. R. and A. P. Tait, who constructed the lodge and chapel. Mr. J. B. Renton, surveyor to the council, prepared the plans and supervised the work.

Edinburgh Rural District Council have passed the other day plans of proposed extensions by the London and North Western Railway Company, and it was stated that the extension was imperative. In addition to the extension of various sidings, it was proposed to widen a bridge in Lathall's Lane. A committee was appointed to consider the proposals, and a report was submitted to the council. The council has agreed to the proposals, and has passed a resolution to the effect that the extension should be carried out. The council also passed a resolution to the effect that the extension should be carried out. The council also passed a resolution to the effect that the extension should be carried out.



A LONDON DINING ROOM.

Mouldings and Enrichments applied to Plane Plastered Surface.

of emeralds, amber, rubies, and sapphires that do not exist.

We cannot avoid imitation, and need not try to.

The foolish condemnation of marbling and graining that novices and amateurs so frequently have expressed is inexpert and insincere. It generally results from want of knowledge, through not having seen such work well done.

But there are some imitations that are not so easy to defend. To put a Gothic paneling of oak into a stuccoed house built fifty years ago, with functionless beams and brackets supporting a ceiling that quite obviously carries its own weight without them, this is an advanced instance of imitation that a decorator would find it difficult to defend.

On the other hand, there is a great deal more to be done than has yet been attempted by decorators as a class in the way of decorating rooms with natural materials used in their natural colours. The present scarcity

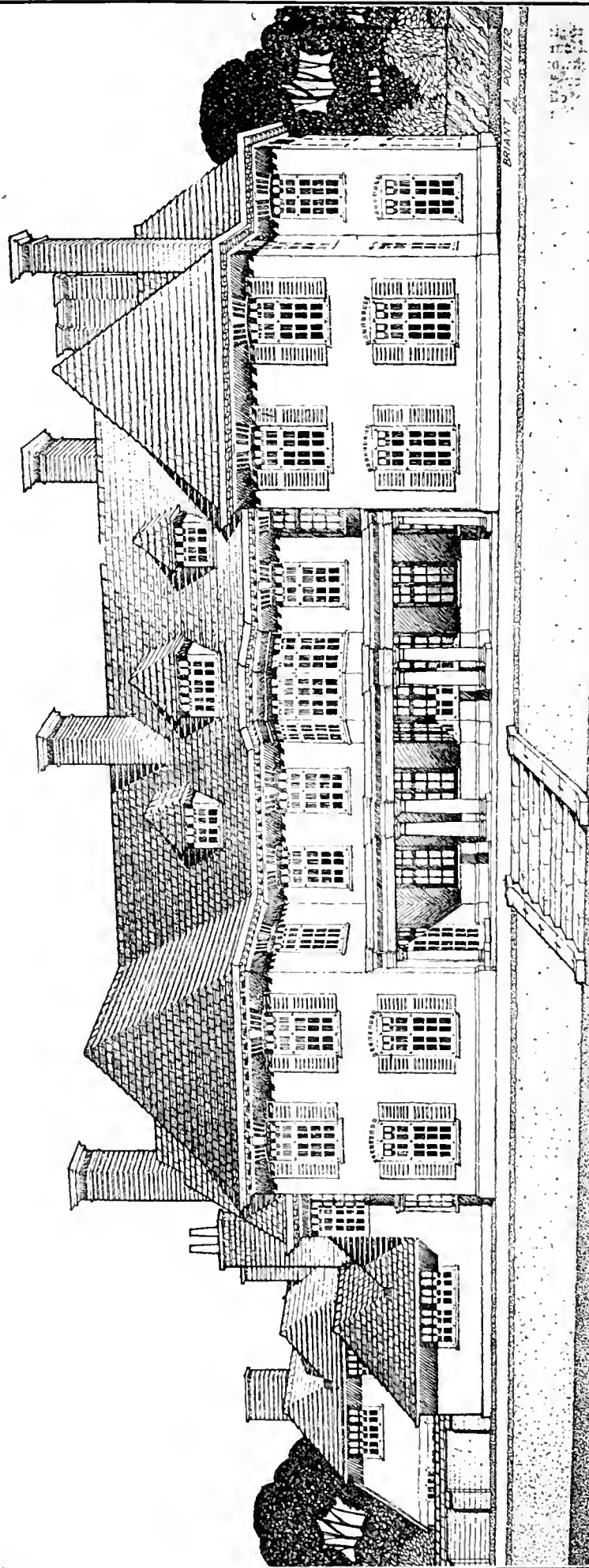
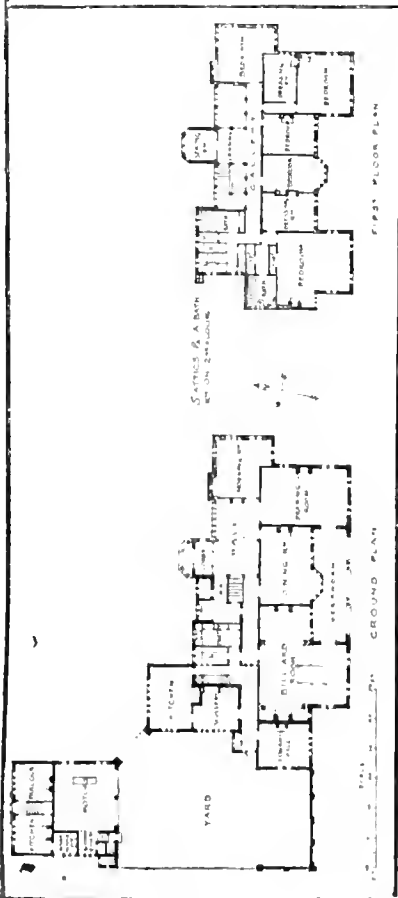
made wall, that a builder looks upon a skirting as a necessity. It has some decorative value in forming part of a frame to the wall. But that is largely because we are so accustomed to skirtings, and a beautifully finished join would soon be accepted in preference to the miserable strip of machine-cut wood, or the plaster imitation of it that we generally use. There is no need for the architrave moulding round a door in many cases, except to cover up the ugly work left behind it.

If the wall were perfectly made so that the frame upon the door hangs, were really presentable in appearance as well as sufficiently strong to do its work, we should get to prefer the genuine structural appearance to the meaningless sham of the ordinary architrave moulding.

I was at the new building of the Chelsea Hospital for Women the other day, and there no skirtings or architraves are used, and the effect is certainly quite happy without them.

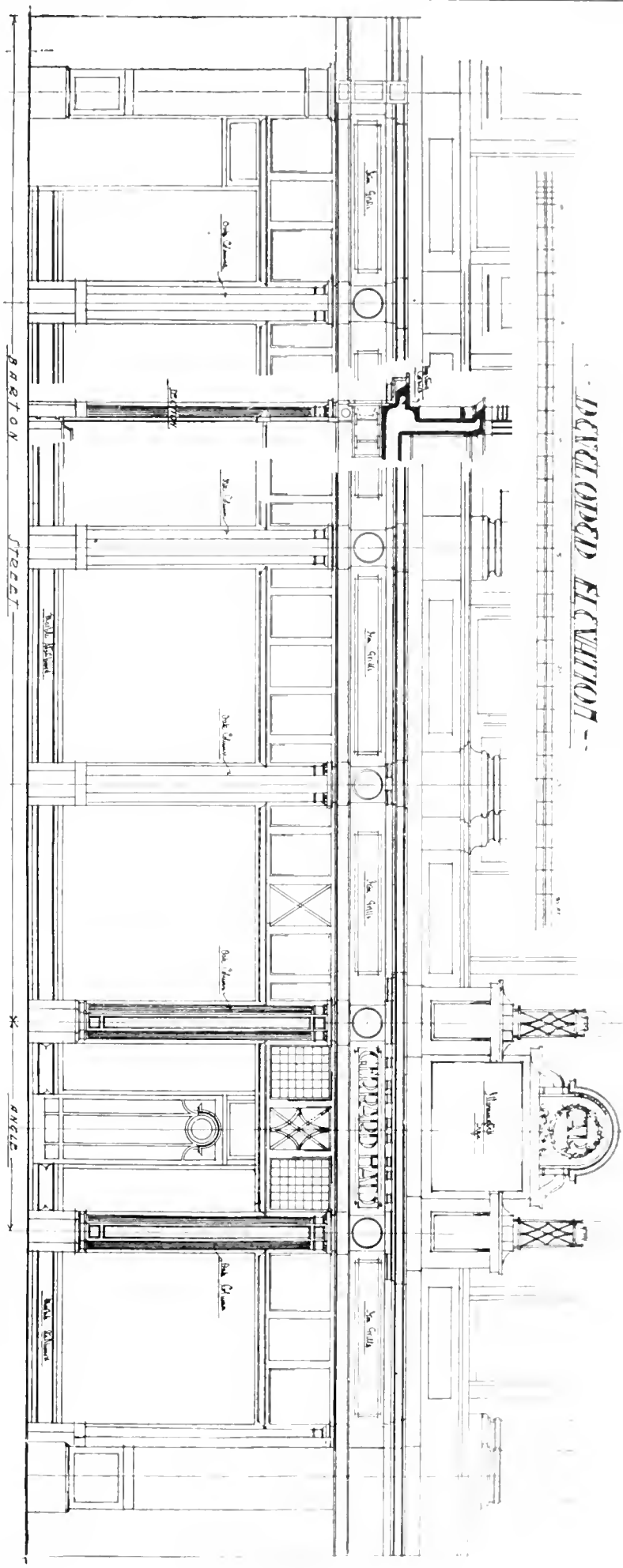
We may frankly make use of what inspiration we can get from natural substances, and

GORSEWOOD · HOOK · HEATH · WOKING ·

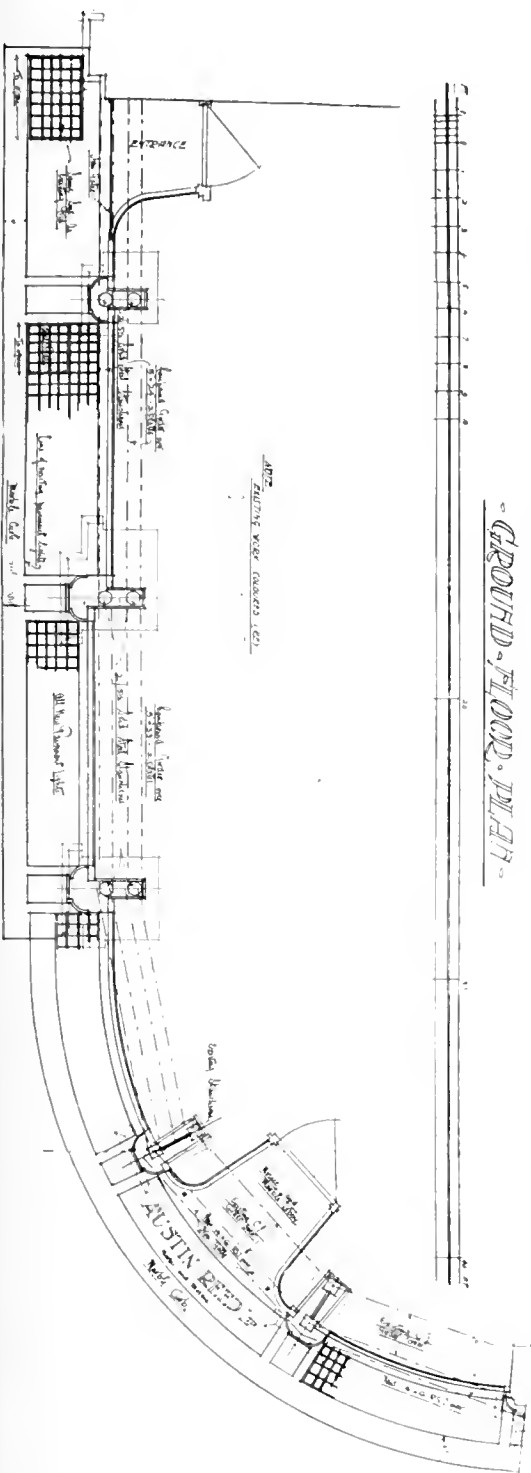




DEVELOPED ELEVATION -



GROUND-FLLOOR PLAN



## Currente Calamo.

The members of the Institution of Municipal and County Engineers have done well to invite Mr. W. E. Riley, F.R.I.B.A., to repeat at Burlington House next Friday his luminous Chadwick Lecture, which we gave pretty fully in our issue of November 24 last, on the Housing of the Workers. No body of men know better the urgency of this matter, and none will more fully benefit by the experience, second to none in the kingdom, which Mr. Riley has accumulated as superintending architect to the London County Council during his sixteen years of service, with results in every way so solidly satisfactory. In various localities in which his colleagues throughout the kingdom will doubtless have their own individual problems to deal with ere long, in connection with the great work which is so absolutely necessary, they will possibly have other needs to meet and other requirements to satisfy, but we are sure they will only grapple with these successfully by following the principle Mr. Riley has demonstrated in London beyond all question—namely, that the true policy is to provide such dwellings, self-contained, on the outskirts of the towns, and not huge airless, sunless blocks of barracks like those in which the Berlin workers are herded, 32,000 to the square kilometre, with a percentage of deaths from tuberculosis one-half greater than that of London, and 30 per cent. greater of deaths of persons from fifteen to thirty years of age. Germany's methods of industrial housing, which compel the worker to "live near his work," seem, indeed, akin to the tactics which hurl masses of troops to the slaughter ruthlessly as "cannon fodder" if only the ends of militarism can be served. Our own people, who are responding as free men to the call of patriotism, deserve, and will insist on, the observance of the wholesome provisions Parliament has laid down, especially as regards width of streets and the use of proper materials, disregarded as they have been by the Government at Well Hall in the building of houses for the Arsenal workers.

The Royal Scottish Academy has felt the bad times severely, like the rest of us. At the annual assembly last Wednesday it was stated that owing to the war the work of the School of Painting has been considerably restricted during the past year. Six students enrolled, as against nine last year, and of these one enlisted during the course of the session. Three students, who in ordinary course would have returned to the class, were unable to do so, being on military service. No women's class was held, as the number of applications never reached the minimum of five. The class for professional artists which was started last year was resumed, there being an enrolment of eight. It was also resolved, as only one or two had presented themselves for enrolment, not to open the class for 1915-16. Two painters and one architect are to be elected as Associates to-day. The new council for the ensuing year is as follows:—Council: Sir James Guthrie (president), William Walls, Sir John J. Burnet, Hippolyte J. Blanc, P. W. Adam, G. Ogilvy Reid, A. K. Brown; W. D. McKay, secretary; Hippolyte J. Blanc, treasurer; James Paterson, librarian; G. Washington Browne and Henry W. Kerr, auditors; William Walls and Sir John J. Burnet, curators of library; Robert McGregor, E. A. Walton, William Walls, Edwin Alexander, visitors of Academy's School of Painting; J. L. Wingate, W. Birnie

Blind, John Kinross, Sir Robert S. Lorimer, James Cadenhead, Art College representatives.

The Electric Lighting Committee of the City of Edinburgh have taken a wise step which might be followed with advantage by all electric undertakings. In the great majority of places, as in the Scottish capital, electric heating and cooking has hitherto been somewhat retarded in progress by the necessity of fitting in special wires in consumers' houses to enable the consumption to be kept entirely separate from the lighting, as the price charged for heating is so much less than that for lighting. Many schemes have been devised to overcome this difficulty so that a consumer could connect heaters, etc., to his ordinary lighting wires and yet obtain the benefit of the cheaper rate for heating appliances. The Electric Lighting Committee of Edinburgh Town Council have had this matter under consideration, and it was thought that the method which has been in use in Glasgow for some years would prove suitable. Briefly, the scheme is that the consumer is charged a fixed number of units per annum for lighting, this quantity being determined by the size of house and number of lamps regularly in use. All consumption recorded by the meter in excess of this fixed amount will be charged at the ordinary heating rate, this at present being 1½d. per unit. This scheme will come into force at the beginning of the next financial year, May 15. It is expected that this will lead to a considerable increase in the use of electricity for heating and cooking appliances amongst domestic consumers. More than ever just now, owing to the high price of coal and the considerable shortage of servants, electricity, with its extreme convenience and absence of dirt and ashes, offers very considerable advantages possessed by no other heating or lighting agent, and the encouragement of its use is a public duty.

One of the daily papers, commenting on the cremation a week or two ago of a Baptist minister, who directed that his ashes should be taken out and sunk in the sea off the South Coast, special permission from the authorities having been obtained, took occasion to remark that, although the practice of cremation was steadily gaining ground among the better classes, it apparently failed to commend itself to the mass of the nation, because of the desire to retain the loved remains of the dead. If this be so—bearing in mind the countless instances of disturbance and desecration of those remains when buried—instances of which we have frequently given—it is difficult to realise that it still apparently fails to strike people that cremation much more reasonably guarantees preservation of the precious dust than burial, as we have more than once shown. We may refer a correspondent who sends us an inquiry on the subject this week, and others interested, to a useful and suggestive series of illustrations, with a well-argued elucidatory article, which appeared in our issue of November 3, 1889, from the pen of a clever and original contributor in those days—Mr. Edward F. C. Clarke. Why, he asked, should not Westminster Abbey infinitely extend its facilities for the reception of our famous dead by the introduction, either in the Abbey itself or in the cloisters, of wall niches, wherein the remains could be interred, with no danger to the living and with economy of space? Why, in our churches, should the dead not once again repose in columbaria, rendered subsidiary to the decoration of the building, rather than in

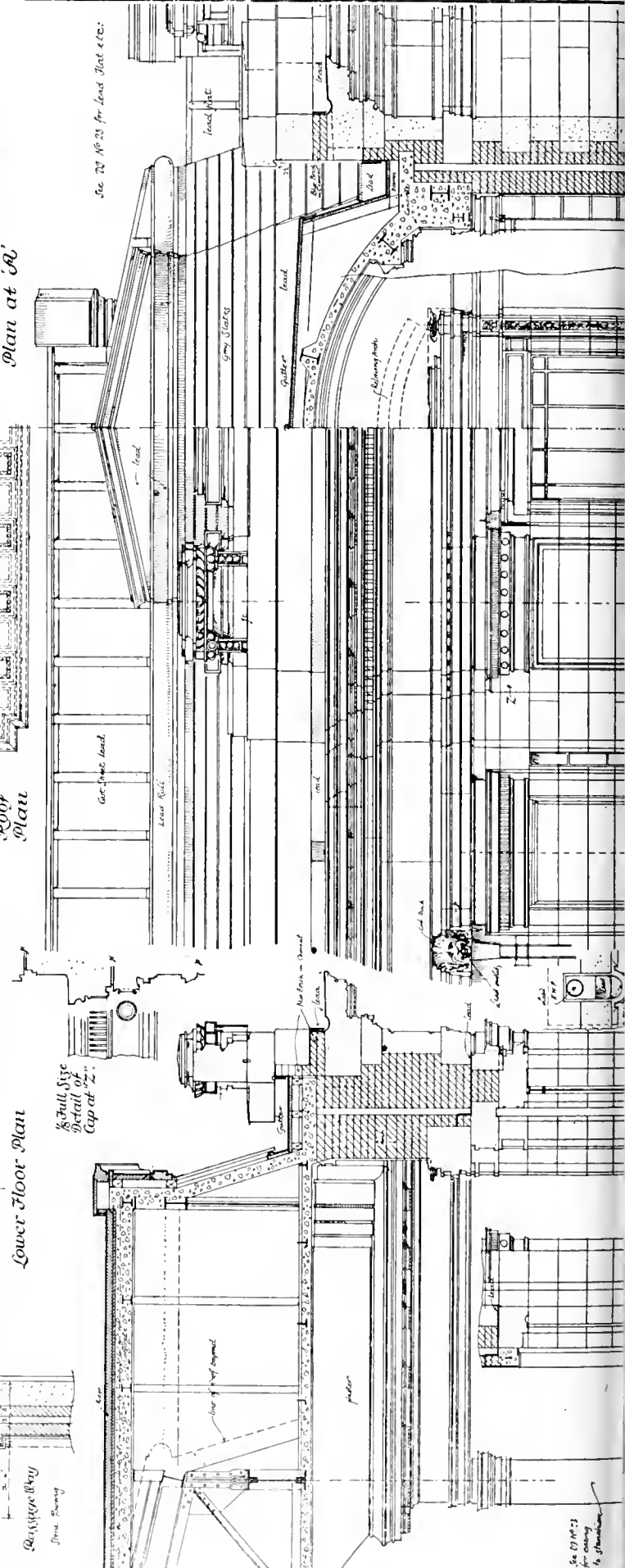
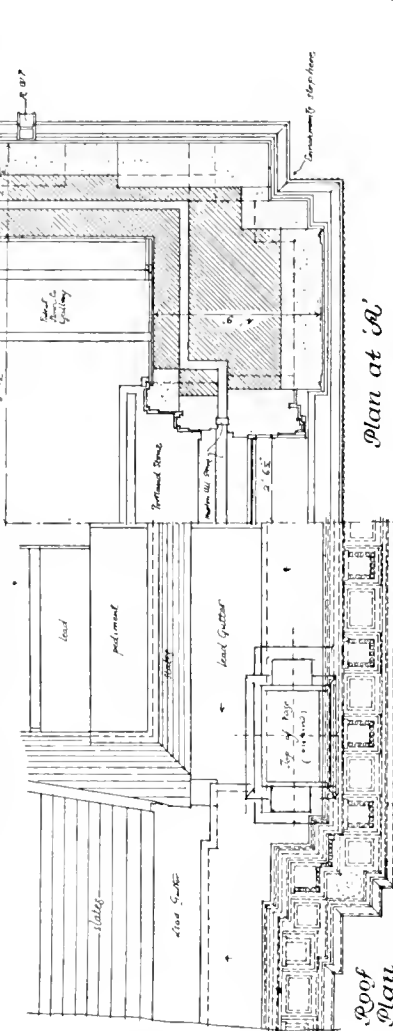
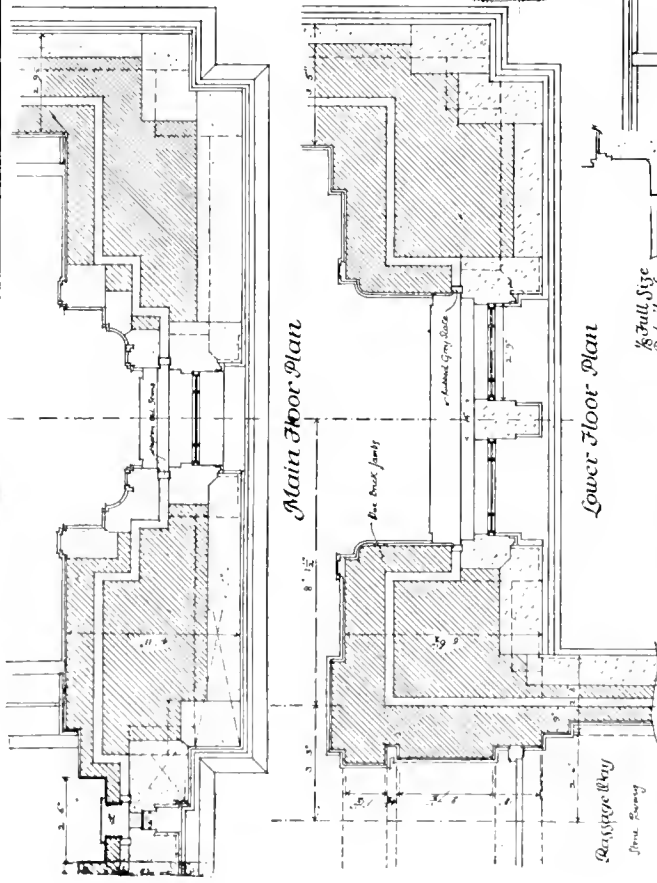
the pestering crowd of bodies in the overcrowded cemetery? Some of us, who in these sad times would fain enshrine the noble slain, of all ranks, in the midst of their own people, might, at reasonable cost, well combine grave and memorial in the fashion indicated in Mr. Clarke's sketches, and leave the cemetery mason, with his ostentatious and often vulgar conceptions, to the patronage of kindred natures.

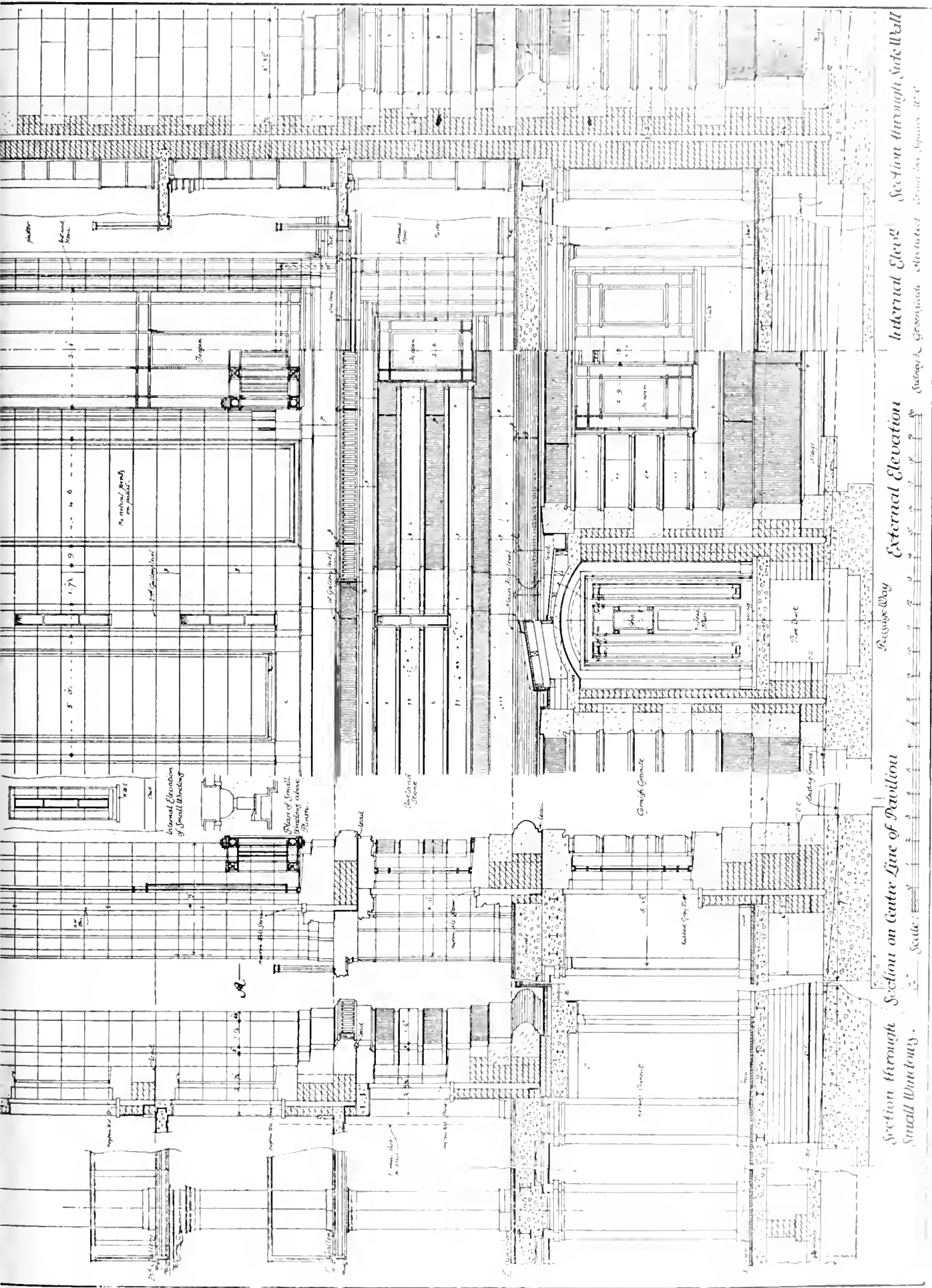
Writing from the Athenæum Club, in the *Times*, Mr. Edmund J. P. Haynes, whose varied contributions—notably his "Standard of Taste in Art"—are familiar to many readers, points out that, in spite of the enormous pecuniary loss to the nation involved by carrying on the work of the Land Valuation Department, the Chancellor of the Exchequer calmly informed the House of Commons last week that "it is absolutely necessary for the work under the statute to be carried on." It is not merely a question of wasting public moneys, but of prolonging a system under which land is losing not merely increment value, but value; the result of which, again, is not only prolonged injury to builders and landowners, but also a loss of death duties in regard to land passing on death. In addition to that, Lord Desborough has recently pointed out that unfortunate persons in the same position as the now famous Mr. Lumsden are being sued by the Commissioners for duty on so palpably unjust a contention that the Government long ago pledged themselves to an amending Act. The figures and facts already given are beyond the region of controversy, and to allow this deplorable state of things to continue on the plea that it is "necessary" merely shows that the desire to save the face of those responsible for a colossal blunder outweighs all considerations of national welfare. Undeveloped land duty has long been abandoned by its would-be collectors, and in the Valuation Department the great majority of the surveyors employed have been discharged. "The whole thing is a fiasco," said one to us only last week, who is now on active service.

The National Organising Committee for War Savings is appealing against extravagance in women's dress. Many women have already recognised that elaboration and variety in dress is bad form in the present crisis, but there is still a large section of the community, both amongst the rich and among the less well-to-do, who appear to make little or no difference in their habits. The principal cause of this is the slavish compliance of the well-to-do with the absurd and arbitrary changes of fashion, which are devised simply with the object of compelling the "fashionable" to buy new clothes, and inducing the rest to imitate them, often against their wishes, because they are afraid to appear singular, or that it should be thought they are wearing last year's costume. "What are they trying to make us look like?" exclaimed one girl to another a few days ago as we watched both looking into the window of one of the large shops. "Last year they tried to make us look as thin as possible, and now they are going to make us as fat as they can!" "Never mind!" was the response of her companion. "I'm not going to wear crinyns!" No greater service could be rendered just now by all patriotic women than by encouraging independence of fashion and its resulting extravagance and bad taste, and recognition thereof should be promptly accorded by the rest of us who believe that "Beauty when unadorned's adorned the most."



*The National Library of Wales  
Aberystwyth. No: 22  
Detail of Pavilion at West End of North  
Elevation of the Library Hall.*

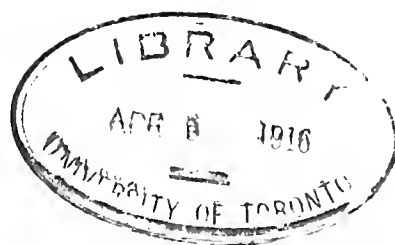




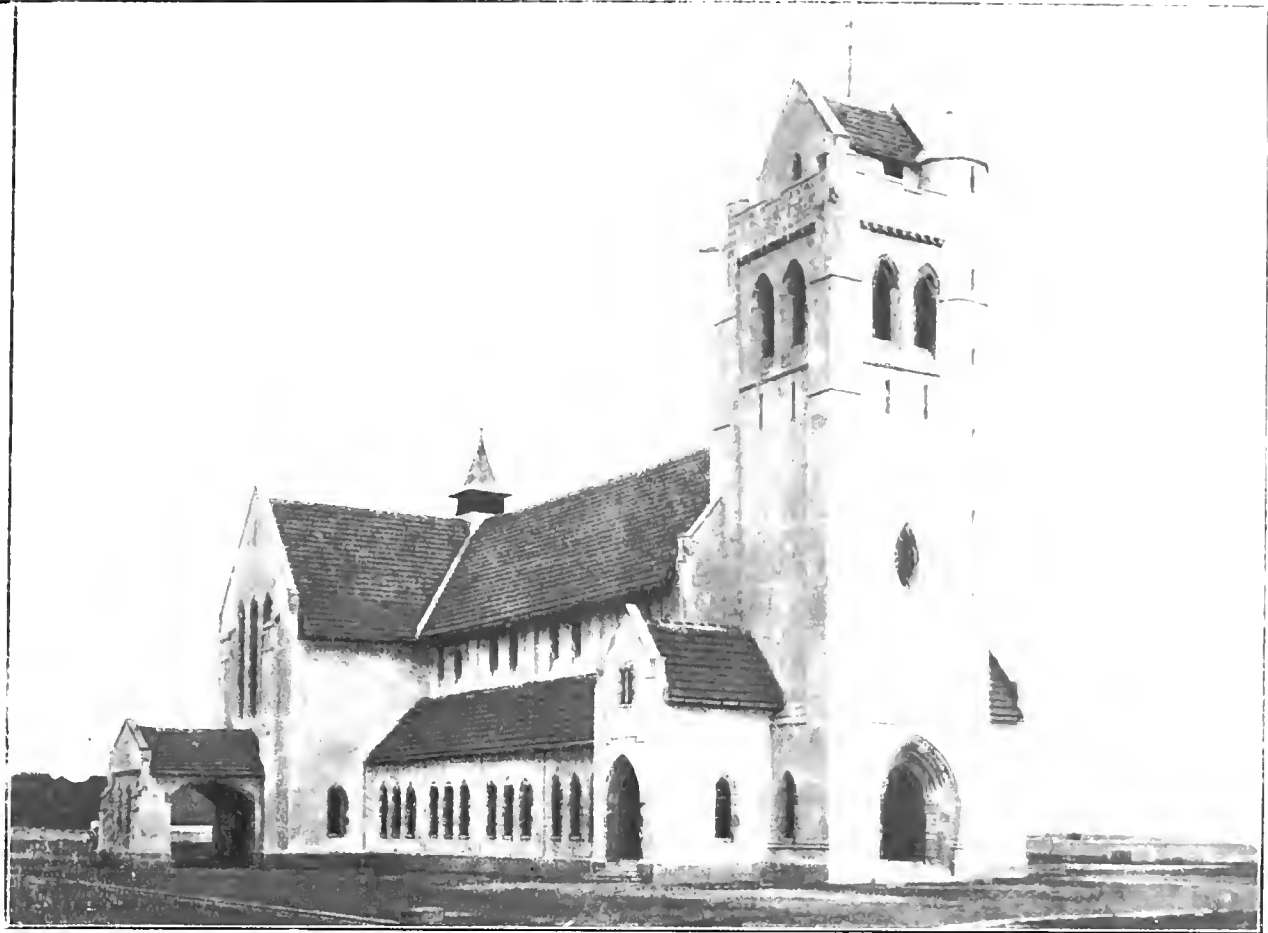
Section through Small Window      Section on Centre Line of Pavilion      Section through Side Wall  
Internal Elevation      External Elevation      Section through Side Wall  
Scale: 1" = 10'      1" = 10'      1" = 10'









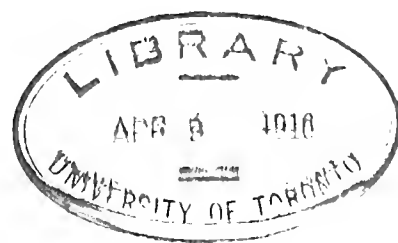


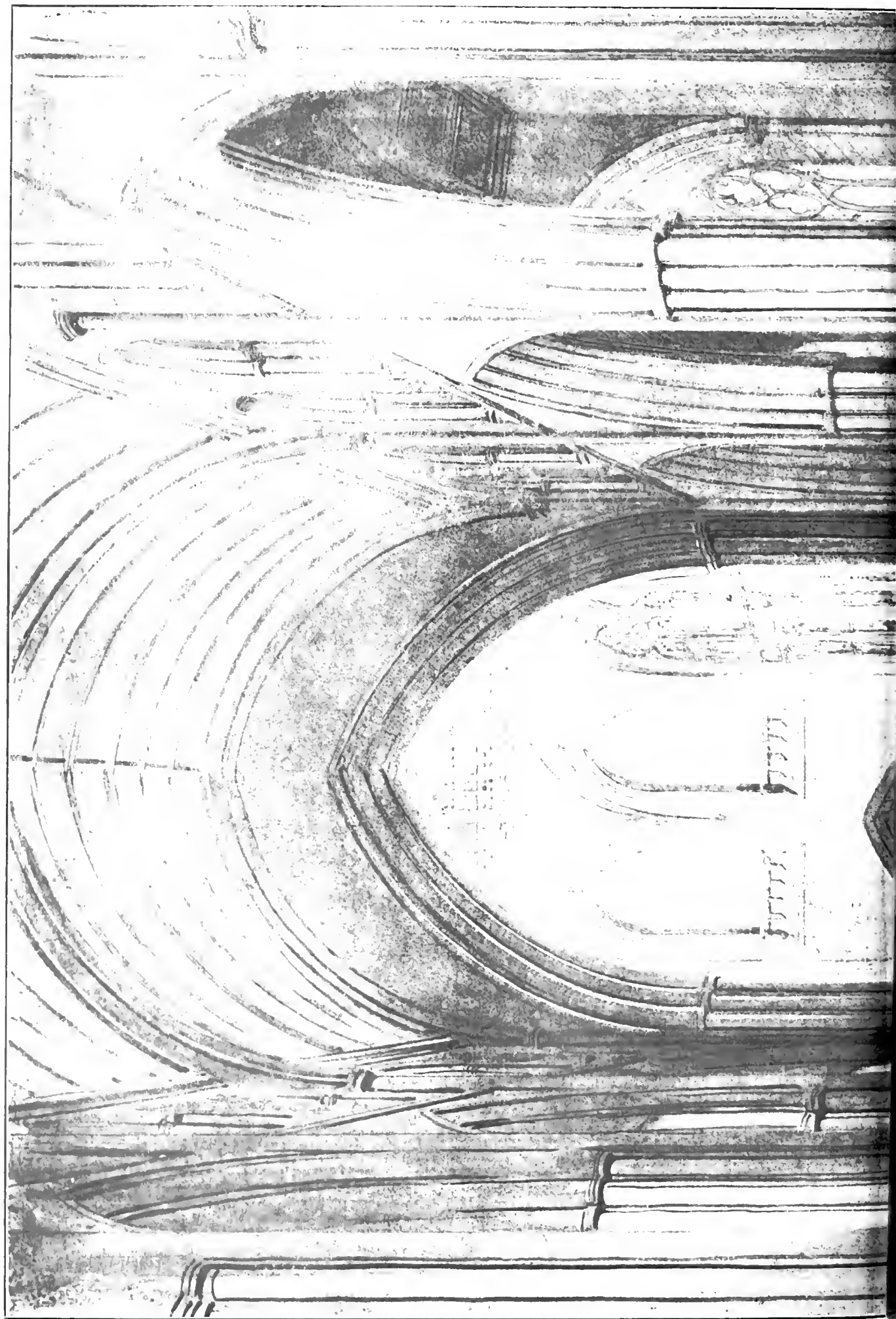
Presbyterian Church, Jubbulpore.  
North East View



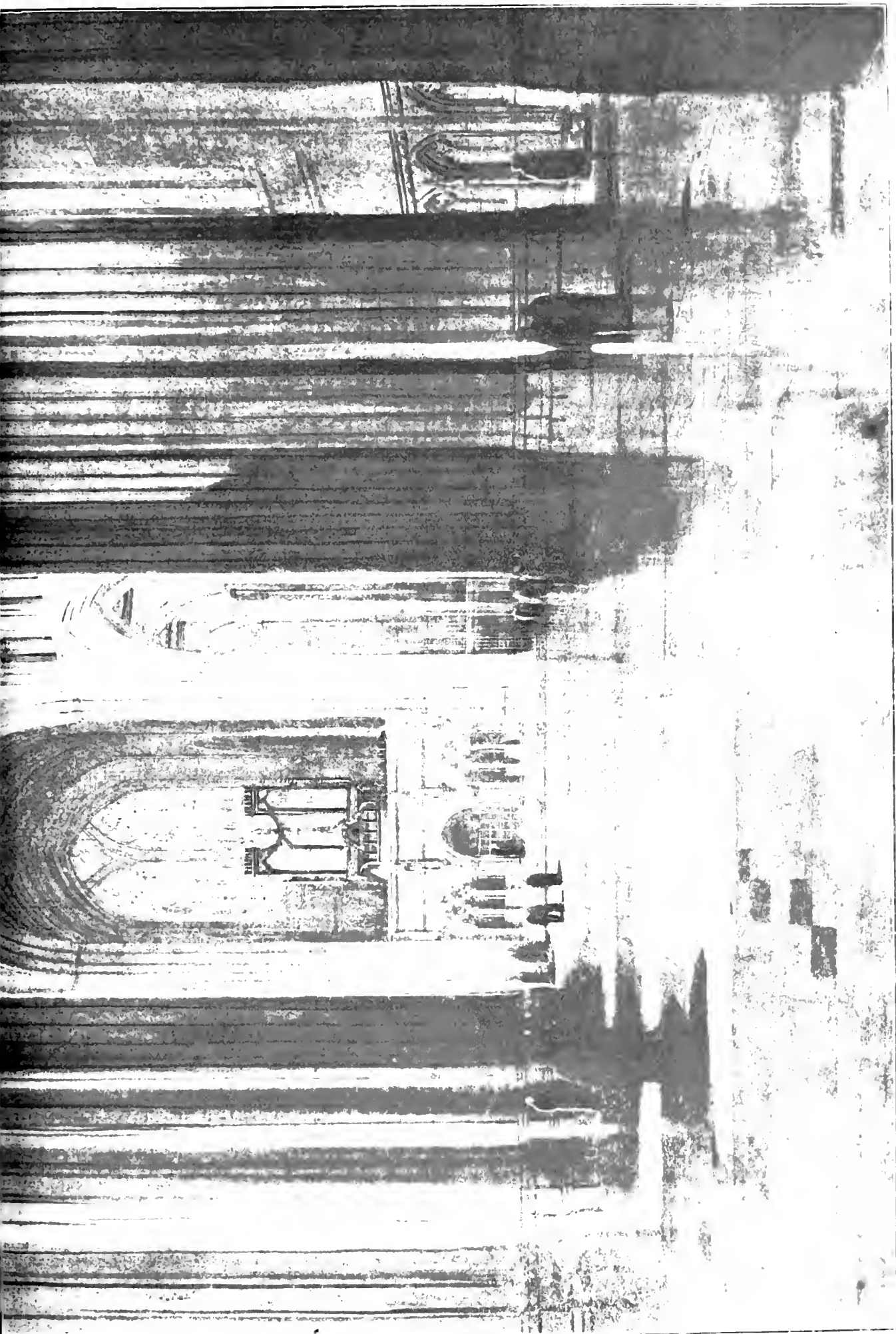
Quarter of the Director, Pasteur Institute, Rangoon











THE SAN FRANCISCO CATHEDRAL, SAN FRANCISCO, UNITED STATES OF AMERICA. MR. C. G. F. C.



Once again the perils of gas are set forth in Colonel von Donop's report on the disaster near St. Bede's Junction, on the North-Eastern Railway, on December 17 last, when all three engines were flung over the embankments, and the horrors of the collision were accentuated by fire. Eighteen passengers were killed, and the fireman of the empty train met his death, and 81 people were injured. The inspector finds that no blame attaches to the driver of either the up or the down train. Each was acting in accordance with the signals, and foggy conditions prevented them seeing the obstruction on the line in front of them. The inspector declares that the evidence that the fire which consumed the wreckage originated with gas is more definite than in any previous case, and furnishes a very conclusive object-lesson on the additional danger which is caused in the case of an accident by the presence of gas on the train.

#### MASTER DECORATORS AT THE L.C.C. SCHOOL OF BUILDING.

A large party of members of the London Association of Master Decorators spent an interesting and informative afternoon on Thursday at the L.C.C. School of Building, Ferndale Road, Brixton, in a detailed inspection of the painting and decorative section of the institution. Among those who accepted the invitation of the Principal were Mr. Mawer Cowtan Cowtan (president), Messrs. J. Anderson, Charles H. Bessant, John A. Boardman, Cecil Campbell, George Colley, H. J. Dakin, Alexander Davidson (secretary), J. H. Dawson, E. Deacon, Felix de Jong, Walter Falkner, A. Seymour Jennings, Edwin Lott, J. Milton, Walter H. Smith, W. F. Swainston, J. D. Watson, H. F. Wilkins, etc.

The visitors were received and welcomed by Mr. H. W. Richards, the Principal, and Mr. A. R. Sage, his assistant, and had the opportunity of seeing all the departments of the day school in full work. The Principal explained that a three years' course is provided both in the senior and junior technical school for boys, the senior being adapted for students of sixteen years of age and upwards leaving secondary or higher elementary schools who intend to enter the offices and works of builders or offices of architects, surveyors, and structural engineers; and the junior school for boys of between thirteen and fourteen years of age who are preparing for work in the building trades and allied vocations. The curriculum is common to all students during the first year, but during the second and third years is divided into two main sections, one intended for artisans and the other for those entering offices. Practical training, as would be seen in the course of the inspection, is provided in painting and decorating, brickwork, masonry, carpentry and joinery and plumbing.

Proceeding to the second floor of the school, the visitors saw the third-year students at work in the admirably lighted and well-equipped decorators' studio. Mr. H. Davis Richter, the visiting teacher, explained that during the first and second year the students are given instruction in the various styles of ornament, beginning with the earliest Renaissance, and are trained in draughtsmanship, work in modelling, and in colour harmony. In reply to questions, Mr. Richter said the lack of a life class was greatly felt at the school, and the establishment of one was in contemplation, although it might have to be postponed, like other much-needed improvements, until after the war. In this room some excellent work in colour was seen. In the modelling-room, on the same floor, a number of students were executing designs in modelling clay. In a third apartment on this floor the painters' shop, lettering, graining, and ornamental details were in progress, under Mr. James Lawrence, one of the instructors, and it was stated that each task, as also in the modelling and ornament-rooms, had to be executed within a scheduled time by the students. Some excellent reproductions in graining of oak, walnut, and birch

eye maple were on view here. The striking stencilled decoration of the ceiling and walls of this room had been executed by the students, who put up their own scaffolding and carried out the whole scheme themselves. Here, too, were seen small models of angles of rooms, in which schemes of decoration were being devised and revised.

The visitors lingered long in the art studio on the third floor, for here Mr. A. R. H. Jackson, A.R.C.A., demonstrated, with the aid of cartoons, charts, and a chromatic top, the principles of colour contrast and harmony, and Mr. William G. Sheppard, B.A., showed how tone, hue, and purity in pigments could be analysed and tabulated with absolute precision. A hearty vote of thanks to Messrs. Jackson and Sheppard for their delightful and lucid expositions was accorded on the proposition of the President, Mr. Cowtan.

Returning to the second floor, a number of second-year students were seen engaged in the competitive working out of a scheme of ornament in pencil, the youth who was adopting an Adam motif being seated between one working in the Sheraton style and another selecting a Wren treatment, so that no risk of plagiarism could occur.

Having inspected the library, lecture hall, and joiners' machine shop, some time was spent in the various trade workshops on the ground floor, including the plumbing room, where lead-burning flat butt and flat laps on metal of various thicknesses from 5 lb. to 14 lb. was in progress; the bricklayers' room, the masonry shop, where an excellent example of a Doric portal has been set up; and the carpenters' and joiners' hall, where about thirty first-year boys were being initiated into mortising, planing, rabbeting, and other details of their craft. The body of the great hall, formerly a public swimming pool, is now being utilised for the training of men and women in the making of munitions. The inspection closed in the testing-room, where, as Mr. Sage demonstrated, a 4-inch cube of yellow deal only yielded to a strain of 35 tons, and a briquette of cement, picked at random from a number made in September last from the cement of the Associated Portland Cement Manufacturers, 1900, gave way under a pull of 750 lb. per square inch.

Mr. Richards, the Principal, in reply to questions, said they would be sending a batch of trained boys out into workshops and offices in about a month's time. They had had no difficulty in placing youths in first-class situations under agreements for two or three years, and had had highly satisfactory reports of those already located. Before leaving, a cordial vote of thanks to Mr. Richards and Mr. Sage was passed, on the motion of the President of the Association, Mr. Cowtan, seconded by Mr. A. Seymour Jennings.

Sir John Rhys, principal of Jesus College, Oxford, left his bust by Sir W. Goscombe John, R.A., to the National Library, Aberystwyth, a building in course of erection from Mr. Sidney K. Greenhalgh's designs, and illustrated by us last week and again in to-day's issue.

Mr. W. Starkie, who, with Mr. W. Epton, has acted as a surveyor of highways to the Rural District Council of Welton, Lincs, has been appointed surveyor to the council, at a salary of £140 a year. Mr. Epton has been appointed consulting surveyor, at a salary of £60 a year.

The committee of the Atheneum Club have elected Mr. Ernest Newton, A.R.A., P.R.I.B.A., the Master of the Temple, and Professor T. F. Tout, of Manchester, under the rule which empowers the annual election of a certain number of persons "of distinguished eminence in science, literature, the arts, or for public services."

Mr. Harry Cockrell, a veteran clerk of works, died at his home, 195, Felixstowe Road, Ipswich, on Friday, aged 76 years. Among the large recent buildings on which he was employed were the infirmaries at Newcastle-on-Tyne, the Tottenham Gas Works, the Croft Clubhouse, London, and in Ipswich the *East Anglian Daily Times* offices and printing works, the new workhouse, and the Grimwade Memorial Congregational Church. He retired from business eighteen months ago, and on one occasion unsuccessfully contested a seat on the town council of Ipswich.

## Our Illustrations.

### INTERIOR OF THE NEW CATHEDRAL, SAN FRANCISCO, U.S.A.

In our issue of March 1, 1916, we gave an exterior view of the new cathedral in San Francisco, planned by descriptive notes, and a plan to illustrate the interior of the same. Mr. G. Hare, of 7, Gray's Inn Square, W.C., is the architect.

### ARCHITECTURAL WORK IN INDIA.

The four illustrations here given were found described in our notice of the annual report of Mr. J. Begg, F.R.I.B.A., the Consulting Architect to the Government of India on page 253.

### THE NATIONAL LIBRARY OF WALES, ABERYSTWYTH. DETAIL OF THE PAVILION.

This Library is established and located at Aberystwyth. A Royal Charter was granted by his Majesty King Edward VII. in March, 1907, and the authorities of the Library and its constitution were established thereunder. The site is a magnificent one, extending to 5½ acres, the gift of the Right Hon. Lord Rendel. It is situated on a hillside quite close to the town; the building will thus be easily accessible, and yet splendidly isolated. The main buildings form four sides of a square, with a frontage of just over 250 ft. and a depth of the same dimension. The central part of the main block consists of administrative offices and the main entrance, leading to a spacious public hall, from which access will be obtained to the great library hall; to the exhibition block on the south-eastern side; and to the department of MSS., which will be built diagonally across the quadrangle. The portions executed and being proceeded with are hatched in on our key plan given last week. They comprise the great library hall, printed books, the manuscripts department, and the exhibition hall. These form three sides of a quadrangle. The great library hall will be a magnificent apartment, its whole length being 165 ft. and 47 ft. wide, with a height of 38 ft. The books will be stored in alcoves around the room, with galleries above. The tables for readers will be arranged down the centre and in the alcoves on each side. Book cases will be provided for 150,000 volumes. The manuscripts department has been arranged to secure the maximum of security against perils of all kinds, together with abundance of light and quiet. The reading-room for this department is placed in the centre. The stacks for the storage of MSS. will allow of between fifty and sixty thousand manuscripts being stored. A room for the keeper and another for the exhibition of interesting MSS. requiring special protection are arranged near the MSS. reading room. The S.E. block consists of three floors. The lower floor will be used for the storage of a library of duplicates, available for circulation throughout the thirteen counties. The main floor will contain the collection of prints, drawings, maps, and plans, and in addition the general art library, with tables for readers. The upper floor will be an exhibition gallery, where interesting and rare books, new bindings, prints and drawings, and other exhibits will be displayed. It can also be utilised for lectures until a lecture hall is provided. This block is of the same dimension as the library hall. The central octagonal hall will be 42 ft. in diameter to the walls, and 25 ft. between the columns. The corridors also extend from the central hall to the library hall, to the MSS. department, to the print room, with stairs on each side leading to the exhibition room. The central hall to the ground floor is 50 ft. and externally 75 ft. in diameter, level to the top of the roof. The upper hall and its approaches are provided with excellent facilities for the display of paintings, sculpture, and other objects of art, portraits, and other objects of interest. Factors to the Library are the following: the grounds are 5½ acres, and the main building is 165 ft. long and 47 ft. wide, with a height of 38 ft. The building is of fireproof construction, and the interior is

lighting plant, together with workshops, bookbinding, and a small printing-office for printing catalogues, cards, etc., will be in a detached building. The caretaker's residence will also be a separate building. It is proposed for the proper safeguarding of the building and its contents that a responsible officer should be in residence close by, and a house for the librarian will be erected on the S. side detached from the main building. The other building shown by the architect, Mr. S. K. Greenslade, in the view is a suggestion for a memorial or lecture hall. This, however, is not included in the present scheme of buildings. The grand total of capacity for book storage amounts to 1,494,000 volumes. The costs of the whole scheme of buildings, terraces, and roads, including a sum of £30,000 for the provision of book stacks when required, is estimated to be from £150,000 to £200,000. The buildings included in the first part of the scheme will cost £106,018. The contractors are Messrs. Henry Willcock and Co., of Wolverhampton. Mr. John Ward, of that firm, has given the work his special attention. Our illustration this week is of the detail of Pavilion at west end of north elevation of the library hall, and its position is denoted as No. 2 on the block plan. The key letters denote:—A.—Administration. B.—Library Hall. C.—Manuscripts. D.—Exhibition Hall. E.—Domed Hall. F.—The Heating Block. G.—Librarian's House. H.—Lecture Hall. I.—The Lodge. K.—The Stacks.

#### "GORSEWOOD," HOOK HEATH, WOKING.

This house is erected on the ridge of Hook Heath, with a fine view to the south towards Guildford and Hindhead. The walls are red brick, and old tiles were used for the roof. There is a wooden cornice, and the bars to windows are also of wood, all of which is painted white. The porch and oriel are of stone. The principal rooms have oak floors, with enriched ceilings, and the walls of same are distempered a light brown, whilst the fireplaces are of brick and tile. The inside woodwork is also painted white. Messrs. Tubbs, Messer and Poulter, of Craig's Court House, Whitehall, S.W., are the architects.

#### SHOPFRONTS, ROYAL ASSURANCE BUILDING, EXCHANGE STREET, MANCHESTER.

This Manchester shopfront, for Messrs. Austin Reed, Limited, is rather a large one, consisting of five bays, with the principal entrance on the curve. The front is well proportioned, nicely detailed, and executed in oak, with wrought iron a feature. The latter is the work of Messrs. George Pridmore and Son, of Coventry. The front, as well as the oak interior fittings, was designed by Mr. P. J. Westwood, A.R.I.B.A., of 7, Adam Street, Adelphi, W.C. The general contractors were Messrs. W. E. Blake, Ltd. We illustrated a smaller front by the same architect a fortnight ago.

#### THE LEGITIMATE USE OF COLOUR IN DECORATION.

See illustrated article by Mr. Godfrey Giles, F.I.B.D., on pp. 254-55-56-57 *ante*.

Second Lieut. F. D. Sowerby, 4th Hussars, a member of the Architectural Association, has recently been awarded the Cross of Chevalier of the Legion of Honour for distinguished conduct in action.

The Earl of Rosebery has presented to the Scottish National Gallery, Edinburgh, the life-size, seated statue of Thomas Carlyle, in marble, the original of the well-known bronze memorial of this distinguished Scotsman, erected on the Thames Embankment at Chelsea. The sculptor was the late Sir Joseph Edgar Boehm, R.A., sculptor in ordinary to Queen Victoria. The Carlyle statue, which was modelled from life, was one of his earlier works. The model was shown in 1875, at the Royal Academy, and the marble statue now placed in Room VII. at the Scottish Gallery has been since it was executed in 1881 a feature of the decorations at Balmoral Castle. The Scottish National Gallery has recently acquired a little water-colour drawing by Mrs. Allingham, showing Carlyle in his study, on the walls of which are to be seen portraits of his heroes, Cromwell, Luther, and Frederick the Great.

## Building Intelligence.

**Doncaster.**—The opening ceremony of Morley Road U. M. Church and Schools took place on March 2. Externally the building is faced with red bricks with stone dressings. The seating, etc., is of oak, and accommodation is provided for about 520 persons, with provision for a future end gallery. The school section is deferred for the present. The contract, for £3,715, has been carried out by Messrs. Pattinson and Son, of Ruskington, near Sleaford, from the designs and under the supervision of Messrs. George Baines and Son, architects, 5, Clements Inn, Strand, London, and Leeds.

**Salisbury.**—The foundation stones of the P. M. Church and Schools were laid on March 8. The church will accommodate over 400 persons, and is of Late Gothic design freely treated. Externally the buildings are faced with Southwater red-facing bricks, the dressings being of stone. The contract for the first section—church, tower and spire, and vestries—is let to Mr. J. Nichol, of Southampton, and the amount is £3,463, exclusive of seating, and the buildings are being carried out from the designs and under the superintendence of Messrs. George Baines and Son, architects, 5, Clements Inn, Strand, London, W.C., and Leeds.

#### PARLIAMENTARY NOTES.

**LAND VALUATION DEPARTMENT.**—The Chancellor of the Exchequer (Mr. McKenna), replying to Major Newman, said:—The Retrenchment Committee considered the administration of the Land Valuation Department and heard evidence on the subject from the Inland Revenue, who assured them that the staff had been reduced to the bare minimum necessary for the continuance of the work imposed by statute. The question withheld from the purview of the committee was that of the repeal of the Act itself. It was not considered desirable that a highly controversial political question of this nature should be raised at the present time. Major Newman asked whether it would not be possible without repealing the statute to put a stop to the activities of the Department, and the Chancellor of the Exchequer replied that it was absolutely necessary that the work under the statute should be carried on.

**THE PROPOSED STRENGTHENING OF CHARING CROSS BRIDGE.**—The South-Eastern and London, Chatham, and Dover Railways Bill, providing for the strengthening of Charing Cross Railway Bridge, was read a second time in the House of Lords on Wednesday. Earl Beauchamp moved an instruction to the Committee on the Bill to take into consideration the traffic requirements across the Thames between Charing Cross and Waterloo, and the effect that this Bill, if passed, would have upon them, and to hear evidence from the Royal Institute of British Architects, the London Society, and others on the treatment generally of this very important part of London. The Earl of Donoughmore suggested that if the words "traffic requirements at this point of the river" were omitted, and words were inserted to show that the Committee should take into account the effect of the Bill upon "the general appearance of the river," he would not oppose it. Viscount Chilton said he was quite ready to agree to the instruction if the proposed amendment was made. It would give the Royal Institute of British Architects and the London Society the right to be heard. The bridges the railway company already had power to build would be a greater impediment to river traffic than would be caused by the strengthening of the existing bridge to enable it to carry to the full extent the traffic necessary in ordinary circumstances. The railway company admitted that the existing bridge was unsightly. They would be glad to see it removed, but after all they were not philanthropists; they were practical people, and they were not prepared to build a new bridge merely to meet the views of people with aesthetic tastes. The Marquess of Creve said the question of the improvement of the appearance of the river at that point was one of supreme importance, and he rejoiced that evidence of the kind suggested would be admitted. After further discussion the debate was adjourned until yesterday (Tuesday).

A Wesleyan chapel is to be built at Cwm Mon, from plans by Mr. R. L. Roberts, M.S.A., of Abercarn.

#### LEGAL INTELLIGENCE.

**NORTHCOTE V. MINISTER AND CO., LIMITED.**—In the King's Bench Division, before Mr. Justice Rowlatt, sitting without a jury, this action was heard on Monday, Tuesday, Wednesday, Thursday, and Friday of last week. It was brought by an architect, Arthur Edward Northcote, of Tothill Street, Westminster, against Minister and Co., fashion-plate printers, Great Marlborough Street, Oxford Street, to recover £347 11s., fees for the preparation of plans for defendants for buildings at 55 and 56, Poland Street, W.C. Defendants alleged that plaintiff warranted that the premises erected from his plans would not infringe rights of light and air vested in neighbouring owners, and that this warranty was not carried out. Defendants set up a counterclaim against plaintiff, and also against Mr. Samuel Nixon, who acted as the surveyor and who introduced to them Mr. Northcote as architect, claiming £225 as damages. Mr. Gibbons, K.C., and Mr. Brown appeared for plaintiff, Mr. Gregory, K.C., and Mr. Neilson for defendants, and Mr. Hollis Walker, K.C., and Mr. Woodgate for Mr. Nixon. The allegation of Messrs. Minister and Co. was that, acting on Mr. Northcote's plans, they entered into indentures of lease for buildings at Nos. 55 and 56, Poland Street, which proved to interfere with the rights of light of Roman Catholic schools in the rear, and that No. 55 also interfered with similar rights of owners at No. 54. Mr. Northcote by his reply denied the warranty alleged, and averred that it was always understood that certain claims for light might have to be dealt with, and a stipulation that the plans might have to be modified was, he understood, provided for in the contract with the lessors. Mr. Justice Rowlatt, in delivering judgment, said that in regard to No. 56, he thought there was an infringement of the lights of the Roman Catholic schools, and they could have obtained an injunction against Minister and Co. if the matter had been proceeded with. He did not think that a professional man was bound to be infallible, but he had to be careful and diligent. The case for Mr. Northcote was that he was authorised to chance the matter of the lights, but he was of opinion that Mr. Northcote misjudged the situation; he did not really apply himself to the angles of light, and the possible claims of the schools were not fully taken into consideration. It was not a very likely thing that a client would say to his architect, "I will chance it," in the sense that plans were to be drawn regardless of other people's rights, but it was likely that a client might point out the difficulties to the architect but tell him to go on, especially at an early stage, but without limiting the architect's obligation to take care. Therefore, he held the case against Mr. Northcote in regard to No. 56 was made out. As to No. 55, difficulties were foreseen, and his view was that when instructions were given to Mr. Northcote it was understood that openings were left for modifications on the plans. It was understood that some little changes might have to be made, but it was not intended that the plans were to be so provisional that it might be necessary to make alterations that amounted to re-building or the making of an entirely different place. He held that the case as to No. 55 against Mr. Northcote was also made out. As to the counterclaim against Mr. Nixon, he held that this failed, and he could not be held liable. He gave judgment for Mr. Nixon with costs. The accounts as between Minister and Co. and Mr. Northcote were subsequently gone into. Judgment was entered for Mr. Northcote on his claim for fees for £256 12s. 1d. (less £96 paid), and costs, except as to the issue of negligence, as to which Minister and Co. were awarded the costs, and judgment was entered for Minister and Co. on the counterclaim for £375 6s. 2d. and costs. Mr. Gibbons, K.C., said that the question of the duties of an architect were involved here, and as in regard to No. 56, it was a very fine point, he asked for a stay, as it might be desired to take the opinion of another court. The application was granted on terms.

The partnership heretofore existing between A. H. Lavers and G. H. Penn, under the firm of A. H. Lavers and Co., at Wandsworth Road, Nine Elms, S.W., in the business of brick and cement merchants, has been dissolved.

A memorial to Captain Sir Edward Hulse, of the Scots Guards, who lost his life at Neuve Chapelle last year, was dedicated in the north-west transept of Salisbury Cathedral on Saturday. It consists of a tablet of Greek marble, carved in 17th Century style, and has above the inscription the arms of the late baronet with mantling and crest. The artist was Mr. W. Aikman, of Camden Square, N.W.

## PROFESSIONAL AND TRADE SOCIETIES.

**ARCHITECTURAL ASSOCIATION OF IRELAND.**—At a meeting of this association held on the 2nd inst., Mr. H. Leask (president) in the chair, a lecture, entitled "Town-Housing," was delivered by Mr. Horace T. O'Rourke. To the architectural student of house or town planning Irish cities and towns afforded great scope for theory, but little opportunity for practice. There was, however, some satisfaction in the reflection that, though little that was practical could be done, surprisingly few mistakes had been made. At present there seemed to exist in Ireland that incipient national condition in which the most modern improvements might be judiciously introduced. Nowhere in the United Kingdom was the home life of the poor town dweller so miserable as in Ireland. Having referred to the effect of bad housing on the death-rate, Mr. O'Rourke stated that the great difficulty of local authorities was to provide sound dwellings at a cost which would permit of moderately low rentals being charged. The cost of building, as a general rule, was so high that the needs of the very poor could not be catered for. The problem in Dublin was very grave. A great work yet remained to be accomplished in Dublin to alleviate the lot of the poor. A cordial vote of thanks was accorded to the lecturer on the motion of Mr. B. C. Cowan, seconded by Mr. C. H. MacCarthy, city architect of Dublin.

**ROYAL INSTITUTE OF BRITISH ARCHITECTS.**—A special meeting of members of the Royal Institute of British Architects was held at 9, Conduit Street, W., on Monday afternoon, to consider a proposal submitted by the Council in order to avoid holding an election for the Council and Standing Committees in 1916 during the absence of several hundreds of members serving with the Forces. Mr. Ernest Newton, A.R.A., the President, occupied the chair. The meeting was well attended, over fifty Fellows and one or two Associates being present. The following resolution was moved by Mr. H. D. Searles-Wood, on behalf of the Council:—"That, in accordance with the provisions of Clause 33 of the Charter, application be made to the Privy Council to sanction the suspension of the by-laws governing the annual election of the Council, the Standing Committees, and the hon. auditors, so that the Council, the Standing Committees, and the hon. auditors elected in June, 1915, shall remain in office until June 30, 1917." The motion was seconded by Mr. A. W. S. Cross, and carried unanimously. Should the Privy Council sanction the proposal, as will doubtless be the case, the following will continue in office until June twelve months:—President: Ernest Newton, A.R.A.; Vice-Presidents: H. V. Lanchester, J. A. Gotch, F.S.A., Sir John Burnet, R.S.A., and Paul Waterhouse, M.A.; Hon. Secretary: E. Guy Dawber; Members of Council: Professor S. D. Adshad, M.A., W. Cave, H. P. Burke Dowling, W. C. Green, H. T. Hare, E. Vincent Harris, G. C. Horsley, J. J. Joass, A. Keen, D. B. Niven, A. N. Paterson, M.A., A.R.S.A., A. N. Prentice, H. Redfern, A. E. Richardson, E. A. Rickards, W. Gillbee Scott, H. D. Searles-Wood, and P. S. Worthington, M.A.; Associate Members of Council: H. Cubitt, W. R. Davidge, L. R. Guthrie, H. Shepherd, Philip E. Webb, and H. A. Welch; Past-Presidents: Reginald Blomfield, R.A., F.S.A., M.A., and T. E. Collcutt; representatives of allied societies: G. C. Awdrey (Bristol), R. Burns Dick (Newcastle-on-Tyne), F. B. Dunkerley (Manchester), C. Kempson (Leicester), A. F. Watson (Sheffield), and J. Watson (Glasgow); representative of London Architectural Association: H. Austen Hall.

**THE LONDON SOCIETY.**—The annual meeting of the London Society was held on Thursday afternoon in the hall of the Royal Society of Arts. Sir Aston Webb, chairman of the committee, who presided, moved the adoption of the annual report. The principal work of the Society during the year had been, he remarked, in connection with the development plan of London, which was progressing favourably. The question of Charing Cross Railway bridge was entering on an acute stage. The

South-Eastern Railway Company were promoting a Bill in Parliament to strengthen the bridge, which was very unsightly, and ought rather to be removed. The bridge was built at two different times. The first half was built somewhat lightly; the second more strongly. The weight of trains had increased so much that the half of the bridge on the eastern side needed strengthening. At present only two trains at a time could run over the bridge, and these two must not be on adjoining lines. The company had hit on the ingenious expedient of strengthening the bridge with iron arches. If this plan were adopted the bridge on the Waterloo side would be supported by arches and on the Westminster side by girders. He could hardly think that such a proposal would be deliberately carried out. Earl Beauchamp on the previous evening in the House of Lords had moved an instruction to the Select Committee considering the Bill to take into consideration the traffic requirements at this point and to hear evidence from that Society and the Royal Institute of British Architects. If the instruction were passed the Society would be satisfied with what they had done up to the moment.—Sir John Young seconded the adoption of the report, which was unanimously agreed to.—The vacancies on the Committee caused by the death of Sir Laurence Gomme and the resignation of Mr. J. Boyton, M.P., were filled by the election of Mr. W. E. Vernon Crompton and Mr. P. E. Pilditch.

## TRADE MOVEMENTS.

**ABERDEEN GRANITE TRADE.**—A conference took place on Wednesday between representatives of Aberdeen Granite Association and the Granite Cutters' Union for the purpose of considering a request by the men for an increase of wages. After discussing the matter for four hours, the employers offered an increase of a penny per hour on the standard rate, making the rate of pay 9d. per hour, which was accepted by the men's representatives.

**UNEMPLOYED BUILDERS AND MUNITION WORK.**—Negotiations are proceeding between representatives of the builders' Trade Unions and the Ministry of Munitions regarding the employment of skilled and semi-skilled workmen in the munition industry owing to the Department's embargo on building operations during the war. A large number of these men have been unable to obtain employment. Representatives of the Trade Unions concerned have met on several occasions at the Ministry of Munitions' Rooms, Hotel Metropole.

## TRADE NOTES.

The "Boyle" system of ventilation (patent), embracing Boyle's latest patent "Air-Pump" ventilators and air inlets, has been applied to the general office and canteen department of the London General Omnibus Co., Ltd., Walthamstow.

Mr. G. Angelo Rainger, over forty years with Messrs. G. Jackson and Sons, Ltd., has, owing to an alteration in the constitution of their business, resigned his position as director, and now joined Messrs. G. and A. Brown, Ltd., relief decorators, of 167, Hammersmith Road, W., where please address all communications.

Mr. R. J. Glass, borough surveyor and sanitary inspector of Maybole, has been presented by the councillors and officials with a marble clock, after fifteen years' service, on his leaving to take up a new appointment as sanitary inspector in the Bathgate district of Linlithgowshire. Mrs. Glass was at the same time the recipient of an oak biscuit barrel.

The semi-circular mosaic tympanum over the main doors of Westminster Cathedral is now on view. The group consists of five figures, representing Christ seated on the throne with the right hand raised in blessing, the Virgin Mary, St. Joseph, St. Peter, and Edward the Confessor. Mr. R. Anning Bell, A.R.A., executed the design, and Messrs. Powell carried out the work.

At a recent examination for sanitary inspectors under the Public Health (London) Act, 1891, held by the Sanitary Inspectors Examination Board, the following candidates passed:—Claire E. Adams, Maud E. S. Cullwell, Violet M. Christy, Dorothy Foster, Elizabeth M. W. Ferguson, Jessie M. Featherstonehaugh, Violet K. Jones, William G. Luke, Beatrice F. Melhuish, Alice M. M. Miles, Eva C. Ogbe, Hilda Payne, Evelyn Sanderson, Mary G. Smyth, and Gladys H. Williams.

## Our Office Table.

A newly patented American pressed steel stair consists of a tread and riser in a single sheet, the tread being formed with a curved nose and the riser terminating in an angularly extended lip, these two parts of adjoining steps locking together when in place.

The trustees of the late Charles Murrell, E.C., contractor, Blackfriars, have written to the Southwark Borough Council formally terminating a contract with the council for the removal of refuse from the northern end of the borough. The existing price is 2s. 5d. per ton, but having regard to the abnormal conditions prevailing the Works and Depot Committee anticipated an increase on this figure. The chairman of the committee reported that the price now asked for the removal of the refuse by the same contractor was 4s. 6d. per ton. The actual amount of refuse sent to Murrell's wharf during the past twelve months was 25,882 tons. This tonnage would, however, be reduced in future. Computing the amount, therefore, at 20,000 tons, the rate suggested (4s. 6d. per ton) would represent to the council an approximate increased cost per annum of £2,000. The council decided to give a trial to a scheme prepared by the borough engineer for dealing with the refuse at an estimated saving of £1,000.

At the last meeting of the Kent County Council tenders for 35,455 tons of hard material for main road repairs were accepted on the recommendation of the Bridges and Roads Committee, at an average price of 17s. 5.67d. per ton. The price, compared with last year, shows an increase per ton of 4s. 0.41. No foreign stone is to be used on the Kent main roads during the coming year, due to the fact that foreign stone is unobtainable, mainly owing to the freight difficulty. All the hard stone for which tenders have been accepted by the Kent County Council is English, the bulk of it being quarried in Leicestershire. The following are the firms which have received contracts:—Groby Granite Co., Leicester; Dosthill Granite Co., Tamworth; Charwood Granite Co., Leicester; Enderby and Stoney Stanton Granite Co., Enderby; British Macadam, Ltd., 123, Cannon Street, London, E.C. (Clee Hill stone); Ellis and Everard, Leicester; Fels Hartshill Stone Soc., Atherstone; Montsorel Granite Co., Mountsorel; and Abdon Clee Stone Co., Bridgnorth (Clee Hill basalt). The prices for 2½-in. Leicester granite range from 14s. 7d. per ton delivered (Groby Granite Co.), up to 19s. 9d. (Montsorel Granite Co.). For Dosthill granite of the same size the price to be paid is from 14s. 2d. to 16s.; for Clee Hill stone from 18s. 3d. to 20s. 5d.; for Hartshill stone from 15s. 4d. to 18s. 9d.; and for Clee Hill basalt from 19s. 5d. to 20s. 5d.

For tarred slag macadam, tenders for a total of 12,800 tons have been accepted, this material displacing entirely Kentish rag tarred macadam, the Kent County Council being informed by the Bridges and Roads Committee that no tenders for the latter material could, "in present circumstances," be recommended for acceptance. The average cost per ton of the tarred slag macadam will be 19s. 1.67d., and the contracting firms will be Tarmac, Ltd., Wolverhampton; Constable, Hart, and Co., 41, Eastcheap; and E. P. Davis, Ilkeston. The total of local material for which the county council has entered into contracts is small—only 3,850 yards of 6-in. and the average cost will be 5s. 7.93d. per cubic yard. The county surveyor is Mr. H. T. Chapman, of Maidstone.

The Cleveland Chapter of the American Institute of Architects has recently adopted a recommendation of the Building Commission of the State of Ohio to the effect that before laying out the foundation of a State building or other public building, the commissioners should secure the services of a competent professional architect to pass upon and advise them of the character of a technical and professional nature and of cost, to the end that the building may be efficient, economical and dignified in architecture.



tural design, and that the location shall be carefully selected. These suggestions have been endorsed by a committee representing the Builders' Exchange of Cleveland, O.

The Iowa Chapter of the American Institute of Architects has instituted a vigorous campaign of enlightenment regarding the value of an architect's services and his proper relation to the public. "A Circular of Information and Suggestion" has been issued addressed to persons interested in building operations, which is now in its fourth edition. This document, designed for free distribution, contains a brief outline of vital elements in connection with all building activities. It explains the architect's functions and status as a professional man, and discusses the considerations that should properly influence a client in his selection of an architect. The wisdom of conducting a competition under any but special conditions is made clear, and the method of procedure when a competition cannot be avoided is also set forth. Advice is offered to clients regarding the treatment they should accord their architects after employing them. The gist of this is that an architect, once selected, should be relied upon, and must have the owner's complete confidence in order to be in a position to produce the best results.

H.M. Consul-General at Chicago (Mr. H. D. Nugent) reports that according to an estimate of the output of Portland cement in the United States in 1915, made by the United States Geological Survey, the production was about 85,732,000 barrels (of 380 lb. net), as compared with 88,230,170 barrels in 1914, a decrease of 2.8 per cent. The stocks of finished cement at the mills amounted to about 11,583,000 barrels, as compared with 12,893,863 barrels in 1914, a decrease of 10.2 per cent. The slight decrease in production and the considerable decrease in stock indicate greater caution in the industry, which in the preceding few years showed a tendency towards over-production. The general prices averaged a few cents lower per barrel in 1915 than in 1914, although towards the end of the year they were considerably higher. The statistics show that the general volume of business was about the same as in 1914. The outlook for 1916 is stated to be brighter than for several years.

The British Vice-Consul at Ekaterinburg (Mr. T. H. Preston) reports that the first cement works were opened in the Urals at Neviansk (Ekaterinburg-Perm Railway) during 1914. Formerly the Urals, as well as the whole of Western Siberia, were dependent on cement transported from Russia from the Volga works at Saratov. The price of the Saratov cement used to be 80 copecks per pond (about £5 4s. 11d. per ton at par), and cement was scarce at this price. The cost of production at Neviansk, however, is stated to be about 2 roubles per barrel (£1 6s. 2d. per ton). The whole production of 500,000 barrels (about 83,333 tons) was sold during 1915. The quality of the cement, according to reports of the consumers, has proved satisfactory. The Ural district is likely to be in the future a very extensive market for cheap cement, and it may interest architects and builders in the United Kingdom to know that architectural and building firms, among whom Germans used to predominate, did considerable business in the Ural district in ferro-concrete structures up to July, 1914.

Mr. F. C. Eden describes in the *Architectural Association Journal* a set of four-and-twenty panels of stained glass which the council decided to retain for the association when the bulk of their collections from the Royal Architectural Museum was presented to South Kensington. As there have been no facilities for its display at 15, Tufnell Street, the glass had remained hidden away in a store-room, and probably few members of the A.A. knew of its existence. These panels, which were put together some time during the last century so as to fill eight lancet lights, measure about 70 ft. super in all, and consist, says Mr. Eden, of fragments of all dates from the thirteenth to the eighteenth centuries. The presence of several thirteenth-century rosette forms, such as were

frequently used as spots of colour set in grisaille, no doubt suggested to the nineteenth-century glazier to make an arrangement on the lines of a grisaille window of that period. There are some pretty pieces of fourteenth-century rose trail and of perpendicular leaf border, and much of the colour is of fine quality, notably the early ruby in the rosettes and the fifteenth-century brown purple in the borders; but the chief interest attaches to five shields of arms which are almost entirely original, which have been identified as those of Grandson, Bishop of Exeter, 1327-40; De Lacy, Bishop of the same see, 1420-58; another set closely resembling the arms of the see of Winchester; those of the Harding family of Dorset; and the arms of Lavington, Bishop of Exeter, 1747-62. Who collected the glass and how it came into the possession of the museum is not known, and probably not discoverable.

The arms of the Hanseatic League, carved in stone by the Danish sculptor Gains Gabriel Cibber, and originally displayed at the Steelyard, the League's London headquarters, in Upper Thames Street, has been presented to the City Guildhall Museum and gratefully accepted. Cibber was paid £5 for executing this carving. The Steelyard, as rebuilt between the years 1670 and 1680, was sold by the German representatives in 1853, and in 1863 the building, then the warehouse of the Victoria London Dock Company, was demolished for the erection of Cannon Street Station. The contractor, Mr. Wythes (father of the present donor), removed the coat of arms, and placed it in the rockery of his garden at Bickley Hall, Kent. The present lessee of that estate, Mr. E. Cotgreave Brown, removed the arms from the rockery stone ten years ago, and placed them on a garden wall, where they hung until their recent removal to the Guildhall.

The report of the Commissioners of Public Works for Ireland for the year ended March 31 last states that owing to the suspension of land loans five vacancies for inspectors were not filled. Harbour works at Buncrana, Rathmullen, and Burton port, which the Board were to have carried out, were postponed owing to war conditions on the coast of Donegal, and the need of restricting expenditure. Early in the war loans to public bodies were restricted to purposes of urgency which offered the advantage of giving employment. Of £65,000 voted for National School buildings, £58,830 were expended during the year, as compared with £51,157 the previous year. Eighteen new schools, and schemes of improvement at seven, were completed by the Board. The corresponding figures in 1913-14 were eight and four respectively. The building of forty-seven new schools and seventeen additions and alterations to existing schools (representing estimated expenditure of £40,461, of which £3,510 was locally contributed) were in hand at the end of the year.

#### MEETINGS FOR THE ENSUING WEEK.

THURSDAY (To-morrow).—Society of Architects. Extraordinary Meeting (members only), to alter the Articles of Association. 5.15 p.m.

Royal Society of Arts. "The Work of the Imperial Institute for India," by Professor Wyndham R. Dunstan, C.M.G. 4.30 p.m.

FRIDAY (March 17).—London Society. "Kensington: Past and Present," by Alfred Moor-Radford. Royal Society of Arts' Hall. 5 p.m.

Institution of Municipal and County Engineers. "Some Conclusions on Housing Workers" (the Chadwick Lecture), by W. E. Riley, F.R.I.B.A., Superintending Architect, L.C.C. Burlington House, W. 5.30 p.m.

THURSDAY (March 23).—Architectural Association of Ireland. Discussion on "Fads." 15, South Frederick Lane, Dublin. 8 p.m.

FRIDAY (March 24).—Glasgow Architectural Craftsman's Society. Annual Meeting and Sketching Club Exhibition. 7.45 p.m.

Owing to the fact that the battalion is at present over strength, recruiting for the Artists Rifles O.T.C. has been temporarily stopped. The Cadet unit belonging to the corps is now established in Dalroos and Gidea Hall, country house lent to the commanding officer rent free by Major Sir Herbert Raphael.

#### TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Ellingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

Telephone: Gerrard 1291.  
Telegrams: "Timeserver, Estrand, London."

RECEIVED.—K. G. and Co.—E. P. A. and Son.—W. and G.—T. C.—F. E. P. and Co.—R. and Co.—K. and Co.—C. B., Ltd.—C. W. H.—A. A.—F. R. M.—S., Ltd.—J. H. and Co.—H. H. S. Co., Ltd.

PHOTO.—No.

T. M. HALL.—Thanks; yes.

M. M.—There is no such rule.

REV. J. G. T.—Better consult an architect.

S. S. W.—Wm. Butterfield was the architect of Kettle College. You will find an interior view of the east end of the chapel in our issue of October 18, 1889.

E. A. A.—We published a good many illustrations of King's Lynn and the neighbourhood in Vol. LVII, in connection with the A.A. excursion in 1889. The back numbers are out of print, but we can send you the bound volume post free for 6s. 10d.

TO ALL AND SENDY.—To prevent disappointment, owing to restricted and later postal deliveries, it is not safe to wait till Tuesday morning to send us advertisements for the current week's issue. Many reach us after 3 p.m., at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order the BUILDING NEWS regularly of their newsagent or bookstall. With the present shortage of paper and probable still further rise in its price, it is futile to expect a newsagent to saddle himself or us with surplus unsold copies to oblige chance customers, on which, moreover, he or we have to pay heavy and increasing carriage charges.

The corporation of Poole have decided to apply to the Local Government Board for sanction to borrow £30,000 for the enlargement of the pumping station at Corfe Mullen and for other work.

The partnership hitherto subsisting between H. S. Scott and H. W. Weedon, under the firm of Scott and Weedon, as architects and surveyors, at Colmore Row, Birmingham, has been dissolved.

The twenty-fourth list of Members, Licentiates, and Students R.I.B.A. who have joined the Forces gives a total to date of 54 Fellows, 416 Associates, 217 Licentiates, and 267 Students. The number of members of the Architectural Association serving at the front is 451.

Mr. George Rutter Fletcher, who died at Highgate on the 7th inst. in his 81st year, was for many years an honorary secretary of the Society for the Protection of Ancient Buildings, and also a member of the committee. A great link between him and William Morris was their common love of George Borrow at a time when Borrow was not so generally appreciated. His careful studies in Welsh pedigrees were much appreciated by Welsh antiquaries.

The marble bust of Sir Archibald Geikie, late Director-General of the Geological Survey, executed by Professor Lanteri, was unveiled at the Museum of Practical Geology, Jermyn Street, yesterday (Tuesday) by Sir William Mather, Mr. Herbert Lewis, Parliamentary Secretary to the Board of Education, accepted the bust on behalf of the Board, and Lord Rayleigh, on behalf of the subscribers, presented a replica to Sir Archibald Geikie.

The *Irish Builder* states that the town council of Wexford recently accepted a tender for building a labourer's cottage for £115. The architects, Messrs. Donnelly and Moore, pointed out that the work could not be executed for anything like that sum, having regard to the present high cost of building, and expressed a doubt that it could be built for less than £140. Nevertheless, the council adhered to their decision. Our contemporary adds: "This is the policy which is largely responsible for the thousands of wretchedly built cottages throughout Ireland, which have already become a serious burden upon the ratepayers in respect of repairs."



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

### Effingham House,

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### THE RELATION OF SCULPTURE TO ARCHITECTURE.

The sculptor sometimes grumbles more or less good humouredly at the architect because of the lack of opportunity afforded to himself in connection with buildings, sometimes, possibly, without cause. We remember venturing to point this out more than a couple of years since, when Mr. Bertram MacKenna, at the Authors' Club, declared that Sculpture in our times, and especially in this country, appears in the guise of a divorced woman, whereas of yore she was the happy wife of Architecture, contented to adorn the one who supported her. Whether or no, as Mr. MacKenna said, this is due to the lack of interest in sculpture shown by those who employ both architects and sculptors, the fact that the architect still designs niches and pedestals about his building is rather a proof of his desire to ensure the co-operation of his brother artist than evidence that he knows perfectly well his niches and pedestals will never be filled. That there is to-day a growing disposition to use sculpture in connection with buildings all over the country, and that architects are desirous to second that inclination whenever the chance is given them, is, we think, obvious, and we have read with considerable interest as likely to further this impulse the well-timed volume entitled, "The Relation of Sculpture to Architecture," by Mr. T. P. Bennett, A.R.I.B.A., just published by the Cambridge University Press, at 15s. The war has naturally brought into prominence the importance of the sculptor in the design of monuments, and those concerned therewith will do well to read Mr. Bennett's book, which is the outcome of considerable study undertaken long before the war commenced, the result naturally being a completeness of treatment and reasonableness of criticism, for the most part absent from some more recent and ephemeral productions issued to meet the want of information on the subject.

Mr. Bennett covers the whole ground. Chapter I. is an introduction dealing with important preliminary matters. Chapter II. deals with the historical aspect of the subject not from an archaeological but from a design standpoint. Chapter III. contains information with regard to the use of sculpture where it is an integral portion of the design of buildings. Chapter IV. extends the subject matter of Chapter III. and deals with sculpture used as an accessory to the building. Chapter V. introduces monumental schemes and deals with the placing of monuments and the influence of surroundings. Chapter VI. deals with small monuments, including single-figure statues and bas-relief treatments; Chapter VII. with larger

monuments, equestrian groups and figure compositions. Chapter VIII. gives details of large monumental lay-outs in several countries, and Chapter IX. is a Conclusion. The volume contains 110 illustrations, principally from photographs. Several are, however, reproductions from drawings, and one or two from etchings and water colours.

It is perfectly true, as Mr. Bennett reminds us, that during the best epochs in their history Architecture and Sculpture have gone hand-in-hand, and the exponents of one have had a very intimate knowledge of and sympathy with the principles of both. Not infrequently these have been seconded by the necessary training and ability in the same artist, first to design the building, and afterwards, with mallet and chisel, to carve the figures which adorned it. It was so with Phidias in Greece, in Gothic times, and during the Renaissance period in Italy. With the giants in art of the last-named era few indeed of later times can compare. Michael Angelo, the most famous of them all, had his work as architect, painter, and sculptor been that of three separate men, would have been acclaimed a genius in each art. The result, of course, was the logical influence of one master-mind over the planning, design, and ornamentation of the building, each harmonising with the other, so that the sculpture and the painting were not only good in themselves, but good as decoration also. For it is but too evident in some cases that sculpture, especially, should not only be satisfactory in itself, but be in sympathy with its surroundings, and of a like character. Mr. Bennett emphasises this fact instructively. The Parthenon, as he remarks, may be one of those masterpieces which can satisfy the critic from any point of attack, and few will deny that the groups of sculpture which adorn it are infinitely better as decorative works (for which, of course, they were intended) than they can ever appear as studio or museum groups. It is just the same with the altogether different groups in Gothic work. The similarity between the stiff vertical folds of the Gothic drapery and the lines of the shafts and mouldings upon pier and pinnacle and vault is self-evident. They re-echo each other more strongly or more faintly as the architecture or the figure is the more important. To-day, not seldom there is an obvious lack of this harmony and form. Modern conditions demand that the work of the sculptor and that of the architect should be rendered by two separate persons, and since this is the case the sculptor must subordinate his ideas to the keynote struck by the architect—at any rate, as far as decorative sculpture is concerned.

With monumental sculpture, of course, it is different. It is true the location of statues and monuments to some extent must be governed by the conditions which dominate those placed in or on a building; but subservience to architectural forms is not so necessary, because of the more ideal nature of the group and the relative greater importance of the sculpture. Here it is the business of the architect to suit his design of pedestal or other adjuncts to the sculpture. His work, uninterfered with by commercial needs, will be inspired by the sculpture and controlled by the surroundings; for a scheme admirably suitable in a park or public garden might be quite the reverse in the confines of a city "Place" or at the junction of crowded streets. In this connection seekers and donors of sites may well study with advantage Mr. Bennett's remarks. He points out, and the memory of recent battles about sites will serve to emphasise what he says—that unless there is some strong reason to the contrary, the lives of certain men make their commemoration unsuitable amidst the prosaic surroundings of street architecture. The painter, the sculptor, the poet, or the musician have no part in the artificiality, the stress, and the hurry of commercial life. They are better in the public garden or in the park, although when, as will occasionally happen, their work has been largely connected with a particular locality, commemoration in that locality is logical and just. The politician, the philanthropist, the civic dignitary, or even perchance the architect, might be fittingly surrounded by the things for which they laboured. The market-place, the centre and the hub of local life in a country town, is above all places the situation for the famous man who was once a native of that town. The broad square gives the monument dignity and importance, and by association the worthy citizen of to-day is constantly reminded of the noble example of his predecessor. Likewise the city square, or the public "Place," suggests a setting for the heroes of a larger sphere. The great generals of the Army and admirals of the Fleet, whose pluck and skill have won for the nation the proud position which it now enjoys, who have gained for its inhabitants security and peace, should stand in their midst. The business man, hurrying about his daily work, and the more leisurely seeker after pleasure pause for a moment and pay homage to the man, remembering that he has sacrificed themselves are richer and more honoured than they would have been had he preferred a life of lazy luxury and indolence in the safe keeping of his home.

Each country, as Mr. Bennett reminds us in his review of the historic periods of

sculpture, has developed monumental forms which in many cases have remained untouched by later civilisations, and which afford suggestions for current use; even the Pyramid, though one of the most wasteful monumental structures ever invented on a large scale, might yet, it is suggested, be a valuable feature in small schemes. The Greek monuments as a whole show variety, interest, and imagination. Greek sculpture did not as a rule attempt to portray the emotions of the mind, but rather to represent intellectual ideas by the perfection of physical types, and in this, as in the application of sculpture to its architectural setting, stands pre-eminent. Roman sculpture is marked by ostentation and over-elaboration, increasing with the transference of the capital to Byzantium, where it revived intermittently till the capture of Constantinople by the Turks. The Early Christian period for many reasons was practically a barren one. That of the Romanesque epoch was undeveloped and often grotesque in character, but Romanesque architecture and sculpture, together, formed the foundation of the Gothic system, during the prevalence of which fully developed work is to be found. With the break in the orderly evolution of architecture co-eval with the rise of the Italian Renaissance about 1377, and the dual training of the architects of the fifteenth and sixteenth centuries came the great harmony between sculpture and its surroundings already alluded to. Much of Early German Renaissance work is heavy and uninteresting, and, as the style progressed, became very Rococo, with some improvement in the eighteenth century under the Classic Revival, of which Shinkel, the architect, was a leading exponent. Early French Renaissance architecture and sculpture, unlike the Italian, retained many Gothic features till the time of Louis XIII., when both arts threw off the remains of traditional forms, and Italian influence as well, becoming thoroughly national in feeling—brilliantly imaginative, and eminently realistic—adding, no doubt, to the interest of the finished work when realism was kept within due bounds, but hardly so where convention was almost entirely abandoned. Still, the best of modern French sculpture is brilliant and versatile, and marked by a true sense of the demands of decoration, spoiled perhaps latterly by a tendency to lose all structural feeling, and to cut and carve stone as if it were sugared ornament. Our own sculpture till the time of Wren is of little note, but there then arose a school of sculptors and craftsmen who produced some really good work, which somehow failed to last, and for many years sculpture in England was at a low ebb. With the Classic Revival improvement began to manifest itself, and during the last few years unmistakable evidence of vitality warrants the belief that while British sculpture may not rival the best of the French, it may give us really vigorous work of definite purpose both in monumental art and decoration.

Mr. Bennett well summarises the considerations which must guide the artist in decorative sculpture in his third chapter, which is a thoroughly practical one. Decorative sculpture undoubtedly is most appropriately used to emphasise points architecturally important. If the architect has striven to create a composition of one kind the sculptor should not attempt to introduce another. If, as is maintained, the design consists of two important pylons connected by a subordinated architectural link, the pylons should be enriched in preference to the centre portion. Similarly, the verticality

of the shaft of the column should be placed in competition with the horizontality of a sculptured band upon a wall behind, cutting across its centre. Place the band of sculpture at the top, carrying through the lines at the cap or at the base, and harmony is at once established, the horizontal nature of the row of columns being then emphasised rather than the vertical feeling of the single shaft. Above all, sculpture must have as its principal purpose the decoration of architecture. If the latter degenerates into a mere setting or field for decoration the purpose of the building is lost, and with it the governing factor of fitness which is the key to all true art. How this is to be avoided Mr. Bennett points out specifically, illustrating his remarks very aptly by well-chosen illustrations of works at home and abroad.

Chapter IV., in which decorative sculpture is further considered, is one the architect should study. It is quite true that he is sometimes tempted to introduce fine groups of sculpture into his building quite irrespective of their fitness. The result is that such additions strike the beholder as afterthoughts introduced arbitrarily without justification, other, perhaps, than deference to some generous donor. Other instances of more avoidable mistakes on the part of the architect are given, which are temperately criticised, and therefore well worth consideration.

The remaining chapters, which deal especially with monuments, great and small, have a wide application. Their location—recent instances will occur to all—seems so often determined by the caprice of those responsible that it is hopeless, perhaps, to expect more discernment. Architect and sculptor alike will still continue to be blamed for apparent failures which are simply the result of the totally unsuitable location of the work, often so manifest as to elicit the jeers of the ordinary crowd, always so needless as to evoke the regrets of the better-informed that such creditable work should have been spoiled by its unsuitable surroundings.

In the three final chapters, which deal successively with the small monument, the larger monument, and large monumental lay-outs, Mr. Bennett has been able to include a number of leading examples of each, which enhance the value of his observations and add to the interest of the volume, which in every respect is well worthy of its subject, and will deservedly secure for its author the congratulations of all capable of appreciating the labour undertaken and the discretion which has guided it.

#### “MOODS OF NATURE.”

A collection of between forty and fifty oil paintings by Mr. F. C. Tilney is now on view at the Camera Club, 17, John Street, Adelphi, W.C., and will well repay a visit. The canvases are landscape studies, the human figure not being introduced, and the treatment is sketchy, and often impressionist. The artist has been inspired in great part by the scenery of West Sussex and South-West Surrey, but he has gone as far afield as the coast of Sweden, though there are no direct transcripts of actual places. Some of the representations of atmospheric effects, of light and shade and colour contrasts, are admirable, as in No. 2, “Rainbow Over the Sea”; No. 23, “A Yellow Sunset”; No. 29, “A Passing Frown”; and No. 39, “The Arun.” The latter is apparently a view near the village of Bury; in the foreground is a sunlit slope of the chalk downs, the wide range of turf broken up by a giant elm to the left, while to the

right on the hillside are gorse shrubs and a little plantation. Overhead threatening cumuli scud across the sky, and the whole scene is still-illuminated by the oblique rays of the setting sun. In “Moonset,” No. 19, the crescent is sinking behind a bank of dark clouds, but there is a monotonous and disproportionate expanse of sky above the dusky moorland, the latter occupying barely one-fifth of the canvas. No. 6 is an excellent rendering of the varied lines of towers and turrets of “Arundel Castle,” overlooking a reach of the Arun, the viewpoint being to the east, not far from the model dairy. No. 14, “The Golden Goddess,” is a nude marble statue on a lofty pedestal in a formal Italian garden of the style of Versailles or Hampton Court; the figure is lighted from the left by the rays of the setting sun, and is partially hidden by a cypress in the foreground; a stone-lined canal leads the eye to a triumphal arch in the mid-distance. In complete contrast to this is No. 42, “Winter,” which depicts a lane submerged beneath a snowdrift, the bushes to the right being laden with the downfall almost to breaking point; here the artist has cleverly grappled with the problem of depicting varying tones of brown, green, and white. A dell “In Roundhay Park,” a sylvan autumnal prospect towards the distant hills, suggests a spot many miles removed from the environs of smoke-canopied and dirty Leeds. The exhibition will remain open on the walls of the Club until April 15.

#### ROYAL SCOTTISH ACADEMY.

##### NEW ASSOCIATES.

At a general assembly of the Royal Scottish Academy, held on March 15, three new painter Associates and one architect Associate were elected. The gentlemen who were successful in the voting were:—

##### PAINTERS.

Mr. Henry Lintott, 19, St. Bernard Crescent, Edinburgh.

Mr. David Alison, 11, Melville Place, Edinburgh.

Mr. Archibald Kay, Woodend, Callander.

##### ARCHITECT.

Mr. James A. Morris, F.R.I.B.A., Savoy Croft, Ayr.

The runner-up in the painting vote was Mr. Douglas Strachan, and in the architectural vote Mr. T. Duncan Rhind, A.R.I.B.A.

Mr. James A. Morris, born in Ayr in 1857, is a son of the late Captain A. Morris. He was educated at Ayr Academy, Glasgow School of Art, the Slade School, University College, London, and the Royal Academy Schools. He commenced practice as architect in his native town, removed to London on business in 1881, and, returning to Ayr five years later, has continued there since. Mr. Morris has been the architect of many important buildings in Ayrshire and in England. He early took a practical interest in archaeology. He conducted the excavations at Crossraguel Abbey, Kirkoswald, under the auspices of the Ayrshire and Galloway Archaeological Associations, and wrote an illustrated monograph on the Abbey, which, along with the charters, edited by Mr. F. C. Hunter Blair, Edinburgh, was published in two volumes. When the town council of Ayr proposed to replace the Auld Brig of Ayr by a new bridge Mr. Morris opposed this proposal, and it was largely on his initiative that Lord Rosebery took up the matter, and that the Auld Brig was saved by subscriptions from all parts of the world. Mr. Morris, who personally superintended the work of preservation, wrote an illustrated volume giving the history of the Brig, and an account of the preservations—a work which cost about £12,000. The new associate is a F.R.I.B.A., a member of the Workers' Guild, London, and a F.S.A.Scot. The Board of Trade twice selected him as a representative British architect to exhibit in international exhibitions.

### THE LONDON COUNTY COUNCIL. THE BUILDING LINE IN THE EUSTON ROAD.

At the meeting of the London County Council on Tuesday, the Building Acts Committee reported that on September 23, 1909, the architect of the Council, acting in the capacity of superintending architect of metropolitan buildings, and by virtue of the powers vested in him by Section 22 of the London Building Act, 1894, issued a certificate defining the general line of buildings on the north side of that portion of Euston Road which is situated between Osnaburgh Street and Hampstead Road. The line defined by such certificate was practically a line 50 ft. back from the pavement. Various parties interested appealed against the certificate, but the Tribunal of Appeal confirmed the superintending architect's certificate so far as it related to the central portion of the line, over three-fourths of the whole, between the limits CC and DD on the plan attached to the order of the Tribunal. In the case of the short length at the Hampstead end, between the limits marked DD and EE on the plan, the Tribunal decided that the fronts of the existing buildings abutting upon the street formed the general line, and as regards the short length at the Osnaburgh Street end, between the limits AA and CC on the plan, they decided that there was no general line.

An appeal was entered by W. L. B. Clode and others (Leslie's trustees) against the confirmation by the Tribunal of Appeal of the superintending architect's certificate so far as it related to the portion between the points CC and DD. This appeal was eventually taken by the Council to the House of Lords, who allowed the appeal and confirmed the architect's decision as to this section of the road. The result of the appeal was reported to the Council on June 22, 1915.

Upon the decision of the Tribunal above referred to being given, notice of appeal was given by the Council against so much of the decision as related to the portion of Euston Road between the limits AA and CC on the plan, the Council being advised that the decision was wrong in law, but by arrangement with the Tribunal and the Metropolitan Railway Company, the latter being concerned as property owners within that section, the stating of the necessary special case for the opinion of the High Court was left over pending the decision of the courts in the case of Leslie's trustees.

The Metropolitan Railway Company and the Council having failed to agree to the terms of a special case, application was made to the Tribunal to settle it, and on the matter coming before them on February 24, 1916, after hearing the arguments of counsel for both parties, the Tribunal declined to state a case on the ground that no point of law arose.

Counsel have advised that, notwithstanding the view expressed by the Tribunal, certain important points of law are involved in the original decision of the Tribunal upon which the Council ought to be enabled to have the decision of the High Court on a case stated. The most important point arises on the decision of the Tribunal that the removal of certain buildings originally forming part of the general line in the section of the road has caused that general line to cease to exist. An important question involving the future development of this part of Euston Road is at stake, and the postponement of the action now recommended might seriously prejudice the Council's legal position in the matter.

The Committee recommended that the solicitor do take all necessary steps to obtain a mandamus directed to the Tribunal of Appeal under the London Building Act, 1894, requiring them to state a special case in regard to their decision that there is no general line of buildings in the portion of Euston Road between the limits AA and CC shown on the plan (Registered No. 3733) attached to the order of the Tribunal made on January 17, 1910.

Mr. A. W. Lupton, assistant surveyor to the Knaresborough Rural District Council, having been called up for service, his sister has been appointed to the vacancy.

### FORESTRY AND THE WAR.

A lecture on this subject has been delivered before the Royal Society of Arts by Mr. Edward Percy Stebbing, head of the Department of Forestry at Edinburgh University. As a result of our unpreparedness in forestry and the absence of adequate supplies of timber grown at home, we have spent, said the lecturer, large sums of money on timber for naval and War Office purposes—money which has gone, for the most part, into the pockets of neutrals. Prices have reached a level which would have been regarded as incredible before the war. We are now engaged in cutting down, in sacrificing, such woods as we have in this country. And we have some 5,000,000 to 9,000,000 acres of land in these islands which expert opinion is unanimous would grow timber, and a considerable proportion of which would carry fine crops of commercially profitable timber trees. The two problems which now present themselves are: (1) The present position of timber supplies and the position which will face the Allied Powers at the close of the war; (2) What should the country do to ensure that our posterity shall not have to face a position similar to the one confronting us to-day? The lecturer urged that at all home-grown woods purchased and felled by Government at the present high rates should be at once replanted by the owner as a condition of contract; (b) the Home Timber Committee should keep a careful record of the amount of material cut from the areas they purchase, its nature and locality in which grown, for this will prove a valuable record in future planting operations. But neither the present imports nor the fellings in our own woods will bring down the present exorbitant prices. His proposition was that the Allies should place themselves in a position to control the European timber market at the end of the war, and to exercise a State control over prices for a time, as the only effective means of coping with the enormous demands that would exist, and to prevent the formation of "timber rings" either by the Central Powers or others. In Russia the Allies had a source of supply which should fulfil the objects required. Russia in Europe had 447,500,000 acres of forests; Finland 62,800,000 acres; and Siberia and Turkestan the gigantic total of 853,000,000 acres—and vast tracts of these lands were unworked or only slightly worked. Russia should be asked by the Allies, by the British Government if necessary, to institute fellings on a large scale in forests adjacent to the most suitable ports. Money would be required to finance the sawmills and open up inaccessible areas, and he suggested that the British Government advance the necessary capital.

The aspect of the forestry problem had entirely changed from its pre-war position, and ought to be faced in the interests of our posterity. The prices of timber were not likely to fall to their former level. So long as prices were low there was a good deal to be said for those who were against afforestation in this country. They put forward arguments which had certain elements of soundness in them, e.g., the contention that forestry would not return even the 2½ to 3 per cent. claimed for it. The Great War had swept away such doubts and arguments. Prices had gone up, and the nation was now assured of successful financial results from afforestation work. He recommended the replanting of the areas felled over during the war and the areas at present occupied by worthless scrub (of which there are extensive tracts in Scotland, amounting to 1,500,000 acres; and the planting of 5,000,000 acres of at present treeless land, selecting in each county the better areas, which would yield a good return from the capital laid out. But if the woods were scientifically managed such an area should place us in a position of safety in the case of a sudden national emergency. On the subject of cost, if they took an all round sum of £3 per acre for the felled over area, etc., class, and £4 per acre for the waste lands, the planting cost would come to 3½ million and 20 million pounds respectively, or a total of 24½ million pounds sterling. If 200,000 acres were planted annually, the area would be planted in 32 years. It should

be possible to start the work on a grand scale at the end of the war, when a considerable amount of the cost of the war would become available. All that appeared to be wanted was a plan of campaign and a favourable hearing from Government.

### BITUMINOUS ROAD CONSTRUCTION.

There is a growing tendency in Great Britain in England, towards the use of bituminous roads—that is, roads in which tar, asphalt, or asphaltic oils are used as a binder for stone, gravel, sand, and slag—or as a protective coating in forming the wearing surface. Mr. Muir, in a paper on "Bituminous Road Construction," read at Toronto last month at the Conference on Highway Construction, dealt with the special features of a number of types of bituminous construction. Methods of using bituminous materials may be classified as follows:—(1) Penetration method; (2) mixing method; (3) carpet coats. In the first method broken stone, passing a 2½ in. ring and retained by a 1½ in. ring, is spread evenly over the ground about 4 ins. thick, and rolled to an even surface. Into this heated bitumen is poured, using about 1½ gallons of bitumen per square yard. Over this a light layer of stone chips is spread, and the surface thoroughly consolidated by a steam-roller. There are a number of methods for pouring or placing the bitumen on for this process—hand sprinkling, gravity sprinkling, and pressure sprinkling. To obtain the best results the bituminous material should be heated to properly penetrate the surface.

The second method is a surface made by the mixing method, and called "asphaltic concrete." This system is well adapted for improving old macadam roads; it is more expensive than the penetration method, but is also more durable and desirable, and will support heavier traffic. Over a layer of broken stone is first sprinkled a light coat of tar as a binder coat to unite the surface to the foundation. On this is spread a layer of stone with which hot asphalt or tar has been previously mixed, generally in a plant on the roadside, in about the proportion of 15 gallons tar to 1 cubic yard of stone. This coat is spread and rolled to a depth of 2 to 3 ins., then treated with a layer of stone chips to dry the surface, and again rolled. The materials should be uniformly proportioned, using the various sizes of fine stuff, sand, stone, and bitumen in carefully and evenly graded quantities. The asphalt or tar should be heated to a uniform temperature, care being taken that it is not over-heated.

In the third method the "carpet coat," as the name implies, consists of a thin layer of asphaltic materials spread over the surface of a broken stone road. Asphaltic oil, a fluxed asphalt, or a suitably fluxed tar are the materials generally used. The road surface, before application, for best results, should be smooth, free from ruts or holes, and thoroughly cleaned to allow maximum adhesion. If the oil used is very heavy and contains a high percentage of bitumen, it is best to coat it with stone chips or pea gravel, to prevent stickiness and give a better wearing quality to the coat. This construction protects the surface of the road from wear, and effectively prevents dust.

A cinematograph theatre, seated for 100 persons, is about to be built at the corner of King's Crescent and Edlington Lane, Edlington, from plans by Mr. D. Milne, A.R.B.A., of Priory Place, Doncaster.

The new Church Institute at Derby has been opened by the Bishop of St. Asaph. The building, which cost £3,000, was erected by Mr. James Hughes, Penkridge, and contains a main hall divisible into three parts for Sunday school classes. In the basement are two recreation rooms.

An addition to Maryhill Public School for Girls, Glasgow, has been opened, presented by the chairman of the Glasgow Trades Union, Mr. James Hughes, Penkridge, and contains a main hall divisible into three parts for Sunday school classes. In the basement are two recreation rooms.

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# ON THE MANAGEMENT OF ESTATES IN MINING DISTRICTS, AND MINERAL VALUATIONS.\*

By G. TURVILLE BROWN, F.S.I.

(Concluded from page 232, March 8.)

The greatest problem, undoubtedly, before landowners, mineowners, land agents, mining surveyors, and others interested in the mining districts, is that of dealing with the mining population. This is a psychological and sociological question first, because it is necessary to discover the real causes of the unrest from which the working population of our mining districts suffer, and, secondly, because there must sociologically be some method of harmonising the relations between the various classes. Although our miners have been the subject of more legislation than any other class in the country, it is an unfortunate fact that there is a great spirit of unrest among them. The causes of this unrest are difficult to get at. Miners' leaders are voluble, but the miner himself is inarticulate. Miners' wages are very high, and although almost every dispute resolves itself into a question of more money, there must be other causes for the trouble. One reason may be the fact that the miner considers that he is deserted by the other classes. The Limited Liability Companies Acts have brought great blessings, but they have undoubtedly destroyed the old kindly feeling between the master and the man, which was the very soul of business in this country up to a generation ago. With the owners of the land in most cases absentees, with the shareholders in the mines also living away from the mining districts, and the works carried on by officials who also depart as soon as their pensions are earned, the miner undoubtedly has some cause to feel that he is left in the lurch by other classes of the community. With the growth of public knowledge and public taste in matters of hygiene, comfort, and climate it is not easy to see how our mining districts are to be repopulated by members of the upper and middle classes. One thing surveyors can do, however, they can use every endeavour to prevent big and medium-sized houses becoming or remaining empty by keeping them up and by letting them even at caretaking rents, and they can set their faces strongly against anything being done which unnecessarily renders the country unfit to live in. A great deal can, and will, be done in the future in the way of remedying nuisances and eye-sores. A notable sign of the times is the replacing of the old ideas of colliery villages with examples such as Brodsworth and Elthorne. The provision of greater comfort for the miner and his family does not, however, touch more than the fringe of the question. The real requirement is to educate the miner to see, and to order his life, "beyond his belly need," and, if possible, to induce in him some frame of mind which will make him content with his lot. Half a century ago a Durham "miner" poet wrote:—

But darker than the gloom 'mid seams of coal,  
More to be dreaded than the fatal damp,  
The night upon the mind,  
The darkness of the soul.

At that time the number of hours in the year during which a miner who "followed his work" was able to see the sun was very limited, and it is probable that in the finer-minded and more thoughtful among them a certain mental effect was produced by their toil underground. Greater education has since altered the type, and the general mental level is now probably nearly equal to that of the miner poet, so that though at the time he wrote them the words did not represent anything very real, for the average miner of that date had not enough imagination to feel any "darkness of the soul," there is little doubt that the man of to-day would be greatly affected by the long hours and the dangers and discomfort of mid-nineteenth century mining. Part of the psychological problem is to discover how far the effect of hours of darkness on a class having ever greater education and higher imaginative powers has been, and can be, discounted by shorter hours and better conditions. It will be a great step forward

when the customs are established among miners of using baths for their proper purpose, and not to keep the coals in, and of wearing suitable pit clothes. Mining is hard exercise, and the first thing any one of us does when about to do anything nearly as strenuous is to get into flannels. It would also add considerably to the miners' status if he changed at the mine and so did not appear in the streets in his working guise. Now that a miner has plenty of daylight hours above ground, he has abundant opportunities for gardening, and even a small holding, with a cow or two, is not beyond his powers, if his wife is a suitable help-mate. Wherever possible, the miner should be a countryman with rural hobbies and interests. No more Clapham Junctions—deserts filled with working-class houses—should be permitted.

The Government, for valuations under the Finance Acts, have apparently adopted the same course as the larger landowners, with regard to employing specialists in mineral work, and the superintending valuers of the various districts have on their staffs surveyors who deal with mineral questions alone. In the 1909-10 Act a very marked distinction was drawn between property in surface lands and property in minerals. Whereas the onus of making valuations under this Finance Act was thrown in the case of surface lands upon the Government valuers, in the case of minerals which were under lease or in work at the time of the passing of the Act no valuations had to be made either by the Government or the landowners; but in the case of mineral areas which were not either actually in work or under lease the onus of making an estimate of their capital value was placed upon the landowner. A request for information for the benefit of the Government valuers known as Form 4, which was sent out by the Commissioners appointed by the Government, contained also a demand or request for a valuation by the owner in every case where undeveloped minerals were considered by the owner to be of value. It has since been claimed that any owner who in making his return failed to make a return also of the value of his undeveloped minerals has *ipso facto* lost the right to do so, and that all such minerals shall, for the purposes of the Finance Act, 1909-10, be taken as of no value at all. This point is at present *sub judice*, though the House of Lords decision upon it, in the case of the "Attorney-General v. Foran," may be expected shortly. It hardly needs pointing out that this case is of great importance to mineral owners, for upon it will depend whether owners will be called upon to pay increment value duty upon considerable areas of mineral at present undeveloped at the rate of one-fifth of the purchase price on sale, or the equivalent in annual sums (4s. in the £) where payment is by royalty; or whether they will only have to pay mineral rights duty (1s. in the £) upon 2-25ths of any capital value which they may declare the mineral to be worth. On the general subject of valuations of mineral areas and undertakings a search through the Institution library shows that very little has been written. Practically the only book that deals directly with the question is by Mr. T. A. O'Donahue, who gives a number of very useful tables and a great many practical hints. The basis, of course, upon which valuations of either have to be made is unlike that which obtains in the case of freeholds which go on in perpetuity, in that the values in question only last for the time that it takes to exhaust the mineral, and therefore all valuations have to be made on what may be called the leasehold basis, that is to say, a sinking fund has to be allowed for replacement of capital. On methods of valuation and the tables to be used, only a general statement can be made. In valuing freehold areas, developed and undeveloped, the main points to be taken into account are:—

- (1) The section and the general conditions and risks common to the district, its geographical position, especially with regard to ports and other markets, and its facilities in roads, railways, and waterways;
- (2) Any special advantages or drawbacks of the particular area, and any indications

of the known beds or seams improving or deteriorating in quality and working cost;

- (3) The likelihood of competition for the area, unless already leased for a long period.

In the case of leased or developed areas, three estimates must then be made:—

- (a) of the approximate amount of valuable and available mineral within the area;
- (b) of the amount of income likely to be produced by the rents, royalties, and wayleaves;
- (c) of the time within which, and the rate at which, such income will be received.

The valuation will then be completed by the application by the valuer of such a number of years' purchase to the income as he judges from his experience to be right. The limits may be broadly stated as running from a 7 per cent. rate in cases where income is secured for many years by favourable physical conditions and the covenants of strong lessees up to 10 per cent., or even higher. A variation from a valuation on ordinary leasehold lines is caused, however, by the fact that a purchaser or investor cannot invest that part of the income which ought to be set aside for replacement of capital at such high rates of interest as he would expect to get on an investment in minerals, and a "mixed table" calculation must be made, in which the pure interest must be taken at the rates, as above, and the sinking fund at the ordinary investment rates of, say, 4 or 5 per cent. Practically there is no such thing as a flat rate of income from mining royalties; outputs are either waxing or waning. It may be necessary in a valuation to make several calculations, covering variations in income over different periods of a term, some even being taken at higher rates than others, and all of course reduced to present value. Where several seams are being worked in one area, the risks may not be the same in each, and separate calculations may have to be made. In the life of most mines working under such conditions there will be a "peak" output from each seam at the time when it reaches its maximum development. Modern dead rents are not so much guide to a valuer as older ones, for the reason that their sum does not represent anything like the gross royalty to be expected, but in some instances valuers will take part of the income covered by them as being worth more than that dependent on royalty payments. In valuing undeveloped areas, the difficult points are to estimate when the income-producing stage will begin, and then to settle at what rate of interest the deferment of the capital value of such income should be taken. In these cases the limits seem to run from "the addition of a year or a couple of years' purchase of the surface rents which a purchaser might give for the chance of any mineral of value underlying the property" rather than have minerals excepted from his purchase, up to a very large fraction of the capital value estimated as if the area were already in work or under lease. It will no doubt be observed that instalments of purchase price, which payments of royalty really are, are called "income." They are so treated by the revenue laws (but not the Settled Land Acts), and under which income-tax and mineral rights duty or annual increment value duty are charged on their full amount. Valuers have to take these taxes into account by deduction from their valuations of capital sums representing (i.) so much of the income-tax as is charged on that part of royalties which is not income, and (ii.) such mineral rights duty or increment value duty as they may estimate the property will have to bear. In the valuation of mining undertakings the valuer is guided by much the same considerations. He must know or estimate:—

- (1) The terms as to rent, royalty, and obligations upon which the mining area is held, or which is likely to command;
- (2) Approximately the total quantity of mineral available to the undertaking;
- (3) The output likely to be obtained;
- (4) In the case of producing concerns he should have full profit and loss accounts for as many years as possible, and

\* Read at the ordinary general meeting of the Surveyors' Institution held on Monday, March 6, 1916.



- (5) He should be able to form some estimate of the break-up value of the plant at the end of the term of the lease, or when the mineral will be exhausted.

Having satisfied himself on each of these points, he has then to consider what profits will be made, when they will be made, and the rate which a purchaser ought to give for the estimated amount of profit to be made over the term of the lease, or of the time that the mineral will last. He will then proceed as in the case of a mineral area, the rates he will take being 8 per cent. to 12 per cent. for the investment, and about 4 per cent. for the sinking fund. He will then add something to his figure for the break-up value of the plant at the end of the term, and make a deduction for the cost of complying with any covenants for restoration and the winding-up expenses. It is often best to consider the break-up value and the deduction together, for in some cases the former will cancel out against the latter. Mr. O'Donahue gives tables dealing (a) with the rates of interest which the purchaser or lessee would expect as the return on his investment, and (b) with the quite different rates of interest at which sinking funds may be expected to be invested. Useful as his tables are, it may be pointed out that the best guide to a company or investor embarking on an undertaking, and to a surveyor making a valuation, in the matter of the rates of interest at which sinking funds should be calculated, is given by the rates which can be obtained from first-class insurance companies for leasehold redemption policies. For large transactions these rates vary almost from month to month, depending upon the value of money for the moment and the expectation of experts such as the secretaries and actuaries of the insurance companies of the rates at which they will be able to invest money during the years covered by the sinking fund policy. The value of such policies to royalty owners and mining lessees is likely to be better recognised in future. In mineral valuations experience and local knowledge, valuable as they are in every kind of business, count for more than anything else. One element of speculation has, however, been done away with within the last quarter of a century in certain valuations, by the fact that preliminary works in the way of borings are now usually undertaken before large capital sums are spent upon sinking. For instance, in the new Kent coalfield the borings put down cover a very large area of country, and are still being added to. From these it will eventually be possible to trace the coal basin from north to south and from east to west. While they are of great assistance, they do not eliminate the great problem of how far the minerals that have been discovered by their means are of commercial value. In her coal seams Britain has been the luckiest country on earth. Her South Wales steam coal series and her Yorkshire "Barnsley or Top Hard" are marvellous possessions. But she cannot expect to turn up the ace of trumps every time. The fluctuations in value of mineral areas and undertakings have been very great. Carnegie once said of iron and steel "that it is either beggar or king." This has been equally true of coal and ironstone, the history, of the coal trade especially, having been that in recurring cycles of roughly seven or eight years' duration, the course of the trade as a whole has usually varied from a production of no profit at all to a profit which, if not beyond the dreams of avarice, has been at any rate satisfactory. In the two main districts profits have been large enough to make the industry not only reproductive but highly progressive. There are, of course, concerns which make money even in bad times, but there are others which make money only in very good times. Some few unlucky ventures never make any profits at all. The average earnings over a long period are probably a good deal less than the 10 per cent. which is commonly taken by valuers as being what mining capital should produce. When it is remembered that the unit of production is the ton, and the rise or fall of 1d. a ton in the price of coal means more than £1,000,000 a year either one way or the other, it can easily be seen that the reflection

of even a moderate fluctuation in prices on the capital value of areas and undertakings must be great.

It would seem that mining surveyors have problems to deal with which are as difficult as any with which surface surveyors are confronted. The mining districts are naturally difficult places in which to do business. The old proverb "Omne ignotum pro magifico" applies particularly to owners of land in mineral districts, who are far more dependent on technical advisers than those owners who are interested in surface land only. It is not possible to give any statistics, but a general statement may be made that freehold minerals are very tightly held, and that the numbers of actual sales of properties either producing income from minerals or likely to do so has been very limited compared proportionately with transactions in other properties. As securities for mortgages minerals are not as much in favour as other real property, and even if willing to lend, investors will not as a rule consider anything over 50 per cent. For mortgage purposes, too, surveyors are naturally inclined to take most cautious views and to put their factors of safety very high.

This paper has been written from the standpoint of a surveyor whose practice takes him into mining districts, with the idea of interesting not only the mining surveyor but also the general practitioner, and for that reason it has been kept as broad as possible. Strings of statistics have been carefully kept out of it, it having been the desire of the writer not to weary his audience more than was absolutely necessary. The mineral districts have been since the days when steam succeeded sails, and iron and steel took the place of oak, the real heart of Britain. Changes in prime movers are undoubtedly upon us. Explosion, or internal-combustion, machines are already strong rivals of the steam engine. The premier position, as fuel, of the South Wales steam coal has begun to be challenged in two ways—first, by oil used as fuel; secondly, by oil, spirit, or extract from bituminous coal or shale used in internal-combustion engines. It is probable that coal in its crude state will not be the fuel of the future, but will be replaced by some manufactured product of coal, easier to handle, less bulky, and more efficient. But whatever changes in methods of producing motion the future has in store, it may certainly be reckoned that the mineral districts will continue to be our country's greatest asset, and that our very existence as a great nation depends upon them. For this reason alone, the Council is entitled to our thanks for the additional tie which links the Institution with those responsible for the care and management of estates in those districts, and which extends our membership to those who by knowledge and experience are specially fitted to make mineral valuations.

#### APPENDIX.

##### SPECIMEN COVENANT FROM A MODERN COAL LEASE, PERMITTING A LESSEE TO WORK SEVERAL OWNERS' PROPERTIES SIMULTANEOUSLY.

The lessees will commence immediately after the execution of these presents to sink to and thereafter in due course proceed (without intermission except as hereinafter mentioned) to do all things necessary to put themselves in a position to work the demised mines and thereafter will throughout this demise in a skilful and miner like manner with a sufficient number of able working miners and labourers and without intermission (unless prevented by influx of water foul air fire or explosion strike lock-out or any unavoidable accident cause or circumstance) explore search for prove drain and work the demised mines together with the adjacent mines in a fair and due course of proving working and prosecuting the demised mines and the adjacent mines regarded altogether as constituting one colliery or mine. And for such purposes will forthwith sink and at all times maintain on the said land in a proper course of working and state of repair one or more sufficient shaft or shafts pit or pits and also will from time to time make erect construct and fix all such drifts headways adits levels outlets buildings erections engines engine-houses offices machinery and plant as may be necessary and proper for

effectually exploring proving working and bringing to bail the demised mines and the adjacent mines or I will carry out and exercise the liberties privileges and powers hereby granted according to approved modes and course of profitable working. And will properly and sufficiently and in a due course of mining operations and having regard to the working of the colliery as a whole work all seams which are now or hereafter during the continuance of this demise may be discovered within the said lands and be for the time being workable and marketable at a fair profit and for the purpose of ascertaining what seams shall be or be likely to be so workable and marketable will in due course as aforesaid give to every seam which promises such a result a proper and sufficient trial. And will at all times actively prosecute and carry on the working in each seam which shall have been begun to be worked (except such as shall for the time being be found not workable and marketable at a fair profit) until the same shall be thoroughly explored and proved. And will not forsake any levels until all coals therein that are workable and marketable at a fair profit shall have been exhausted: Provided always that the lessees shall not be bound to work or raise any iron ore ironstone or fireclay nor to work any coal or cannel which is not for the time being workable and marketable at a fair profit or which they may be required to leave as herein provided or which shall be necessarily or properly left for purposes of support or protection.

#### LEGAL INTELLIGENCE.

BUNGALOWS AS TEMPORARY BUILDINGS: APPEAL, WIRRAL R.D.C. v. ANDREWS.—In the Appeal Court, before the Lord Chief Justice, Lord Justice Warrington, and Mr. Justice Scrutton, on Friday, the Wirral Rural District Council appealed against the decision of Mr. Justice Atkins, in an action tried at the Liverpool Assizes, in favour of Mr. Arthur Andrews, of Leopold Road, Liverpool, awarding the latter £20 damages caused to a bungalow erected at Moreton, Cheshire, of which plaintiff was the owner. Mr. Rigby Swift, K.C., and Mr. Greaves, Lord represented the rural council and their surveyor (Mr. W. Webb Shennan), and for the plaintiff in the action and the present respondent Mr. Greer, K.C., and Mr. Maconkey appeared. The bungalow was one of a number constructed in panels at Liverpool and conveyed to Moreton, where it was erected. The owner, W. R. Andrews, was fined for not erecting it in accordance with the rural council's by-laws, and entered an appeal, but did not proceed with it. The erection changed hands several times, and when Arthur Andrews, junr., was ordered to remove the building he set it upon four wheels and declared that it was a van, and was, therefore, out of the scope of the by-laws. The council then removed the structure, and Arthur Andrews brought the action heard by Mr. Justice Atkins, the subject of the present appeal. Mr. Justice Atkins, in his judgment, had held that this erection was, in fact, a building within the meaning of the statute and by-laws, that the by-law was good, and that no needless damage was committed, but he went on to find that what had been done could only be justified under the by-laws, and that as the defendant council had failed to prove giving the notice required by the by-law before proceeding with the work of demolition they were, therefore, liable for trespass, and he gave judgment for plaintiff for £20. From that judgment the rural council now appealed. The court allowed the appeal.—The Lord Chief Justice, in giving judgment, said the learned judge below was right in refusing to accept secondary evidence as to the notice to Mr. W. R. Andrews, for this building was a temporary building, which came within the amending Act of 1907, under which such notice was not required. The council were, however, right in their action, and the learned judge below was wrong on this point, and his judgment must be reversed in favour of the defendants. The appeal was allowed accordingly, with costs.

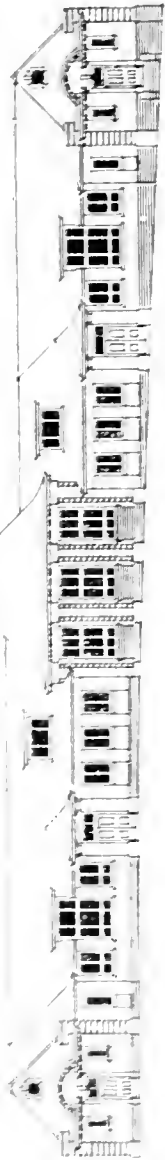
Mr. Oliver Hall and Mr. David Martin Smith have been elected Associates of the Royal Society of Painters in Water Colours.

Errol Parish Church has been reopened by the Right Rev. Dr. Walter Williams. The whole interior has been remodelled and decorated, and new vestry and choir rooms have been provided. The works have been carried out by Mr. P. Macgregor Chalmers, architect, of Glasgow, who also designed the carved oak pulpit. The whole scheme is a gift by Lady Ogilvy Dalgleish, of Errol Park, in memory of her late husband.

COUNTY BOROUGH  
OF BURNLEY

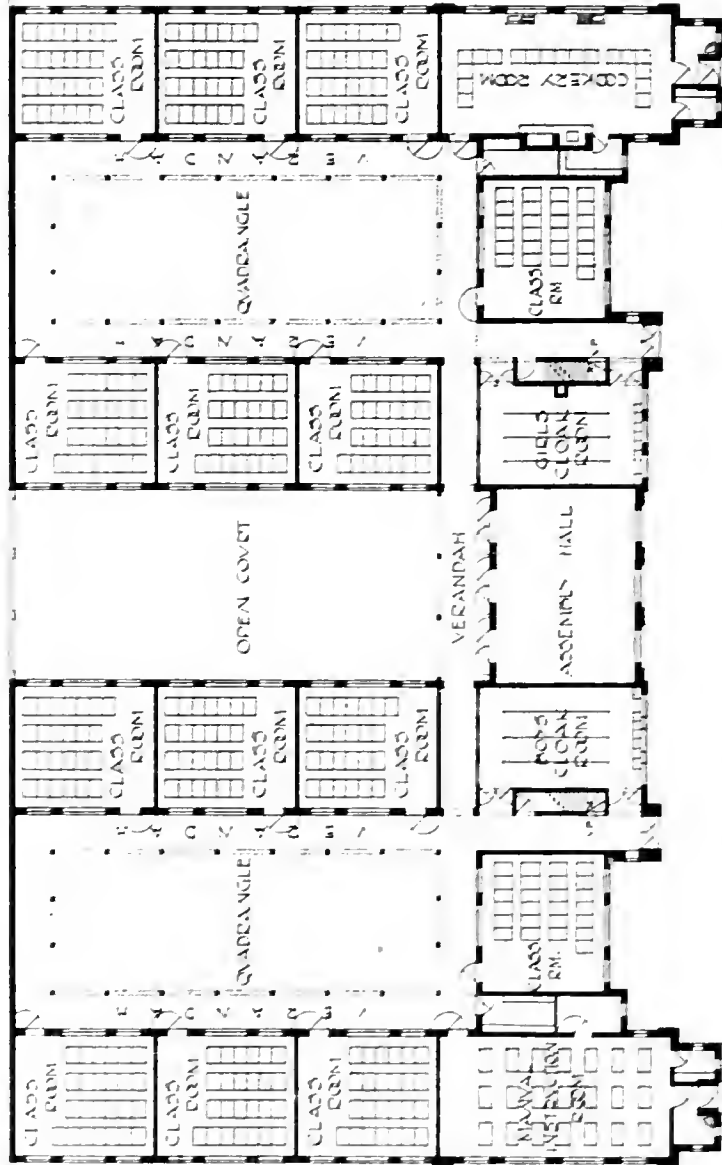
LIONEL STREET  
SENIOR SCHOOL

FRONT ELEVATION



GROUND FLOOR PLAN

B A C K S I D E

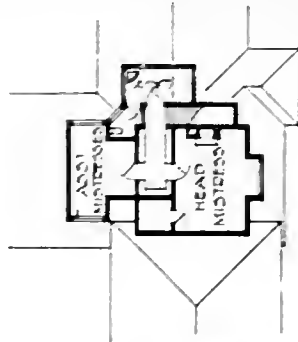
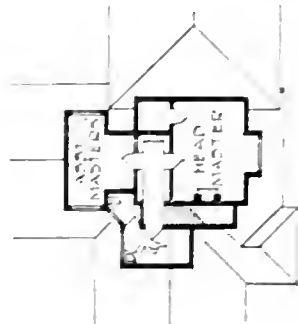


FIRST FL. PLAN

BOYS' DEPARTMENT

GIRLS' DEPARTMENT

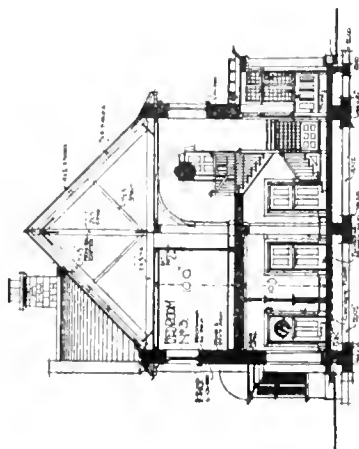
FIRST FL. PLAN



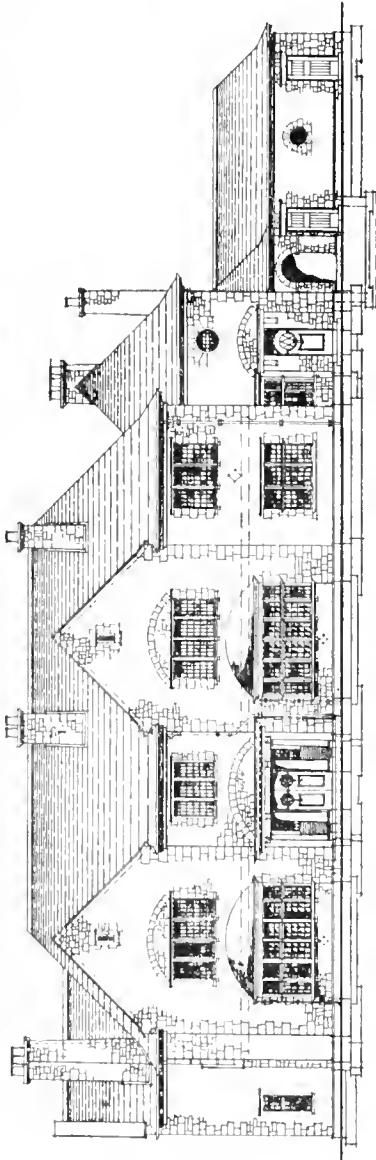
COUNTY BOROUGH OF BURNLEY: LIONEL STREET SENIOR SCHOOL.—Mr. G. H. PICKLES, M.Inst.C.E., Borough Engineer, D.C.



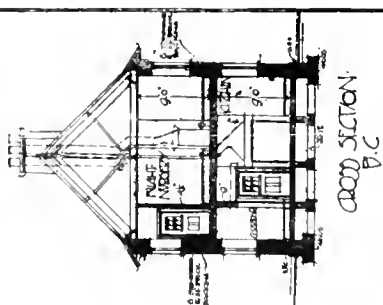




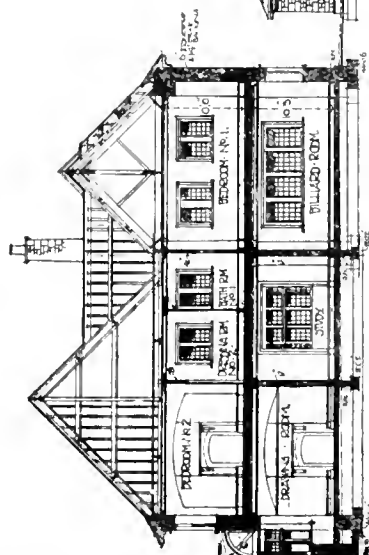
CROSS SECTION  
A D



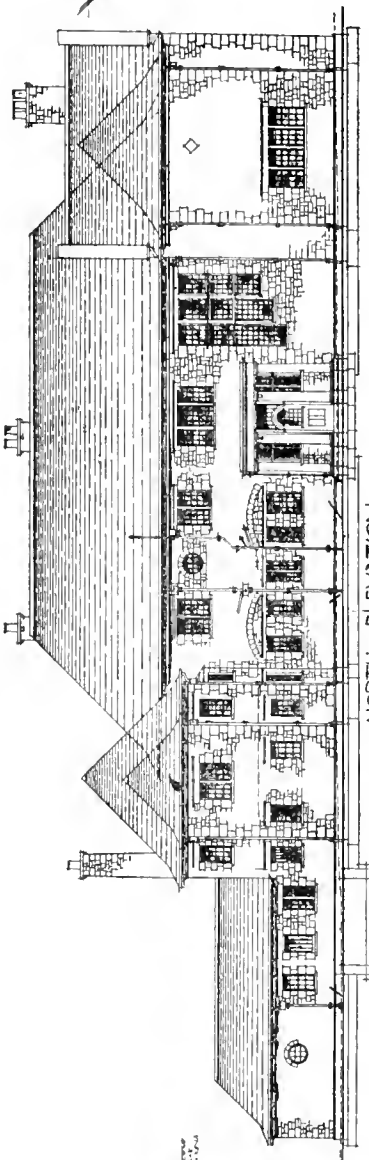
SOUTH ELEVATION



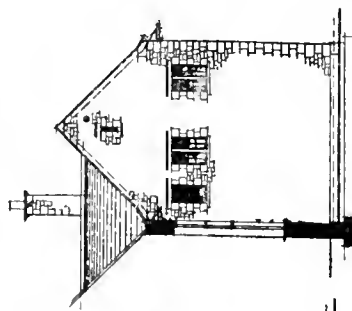
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B C



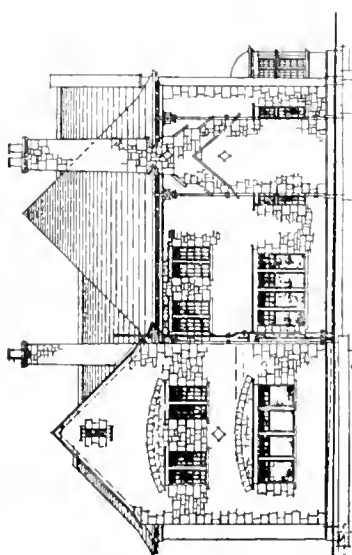
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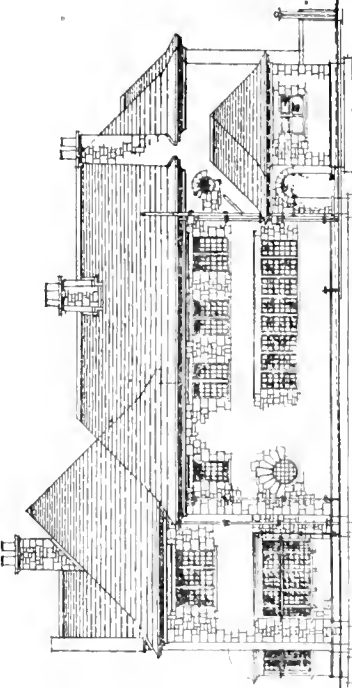
NORTH ELEVATION



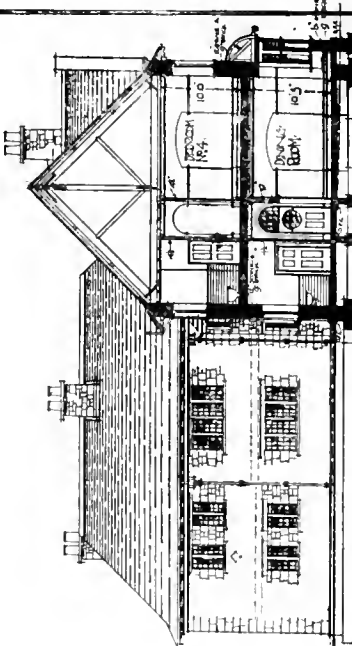
EAST ELEVATION OF  
BILLIARD ROOM



WEST ELEVATION



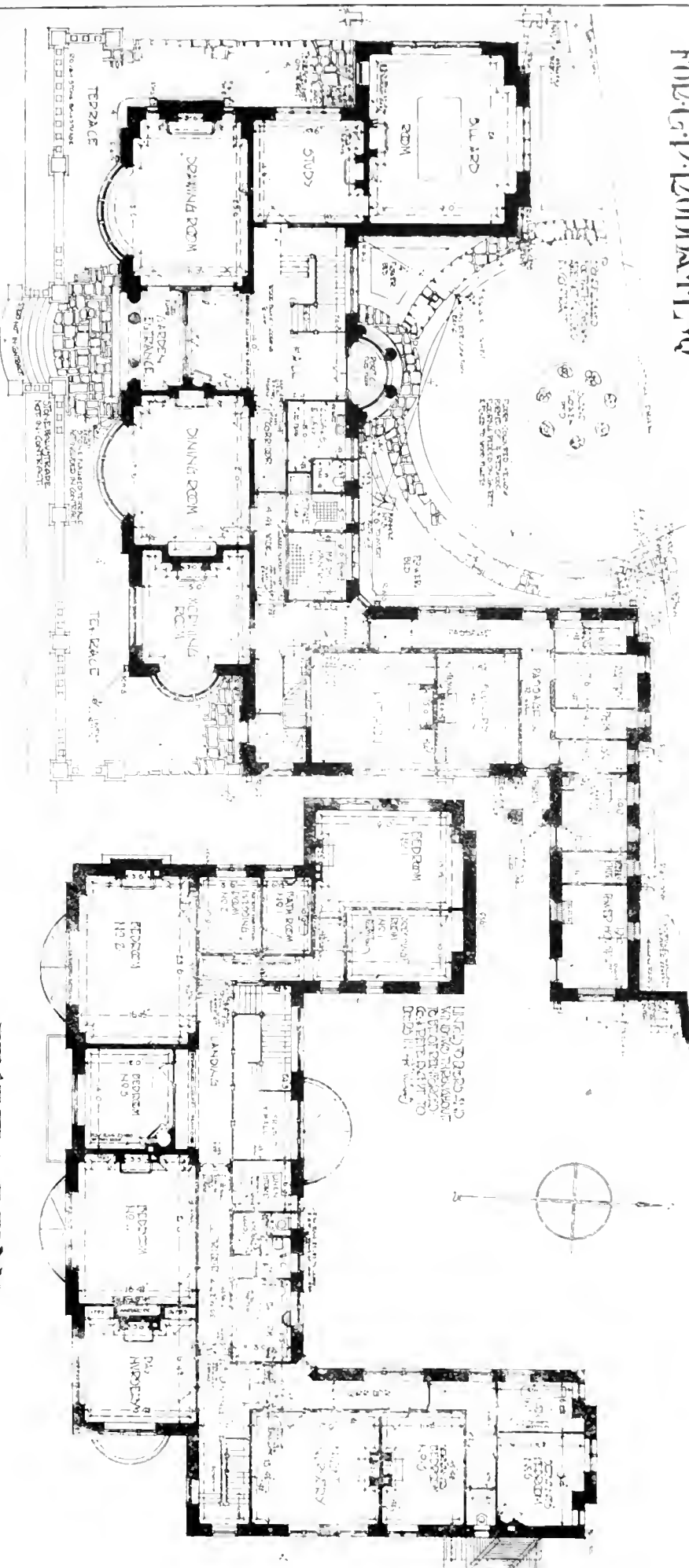
EAST ELEVATION



SECTIONAL ELEVATION

# RESIDENCE NEWTOWN-STANHOPE FOR MR. LONDON-FIELD

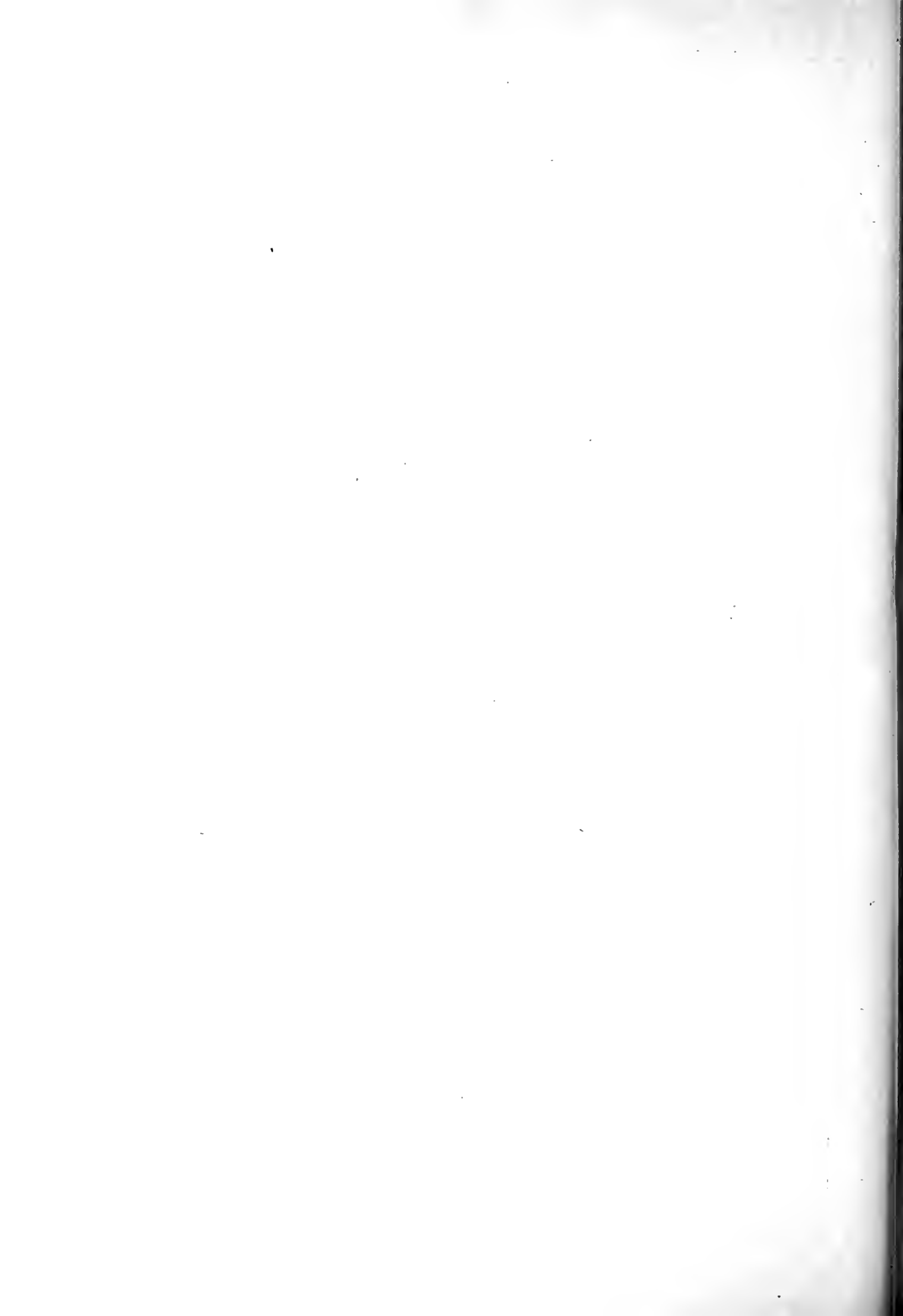
ARCHT. PLAN  
BY MR. LONDON-FIELD

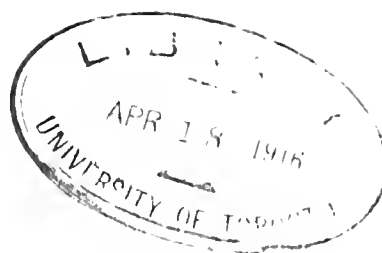


GROUND-FLOOR-PLAN

FIRST-FLOOR-PLAN

RESIDENCE, NEWTOWN-STANHOPE, WEARDALE, DURHAM.—MR. JOHN G. BURRELL, LIC.R.I.B.A., ARCHT.

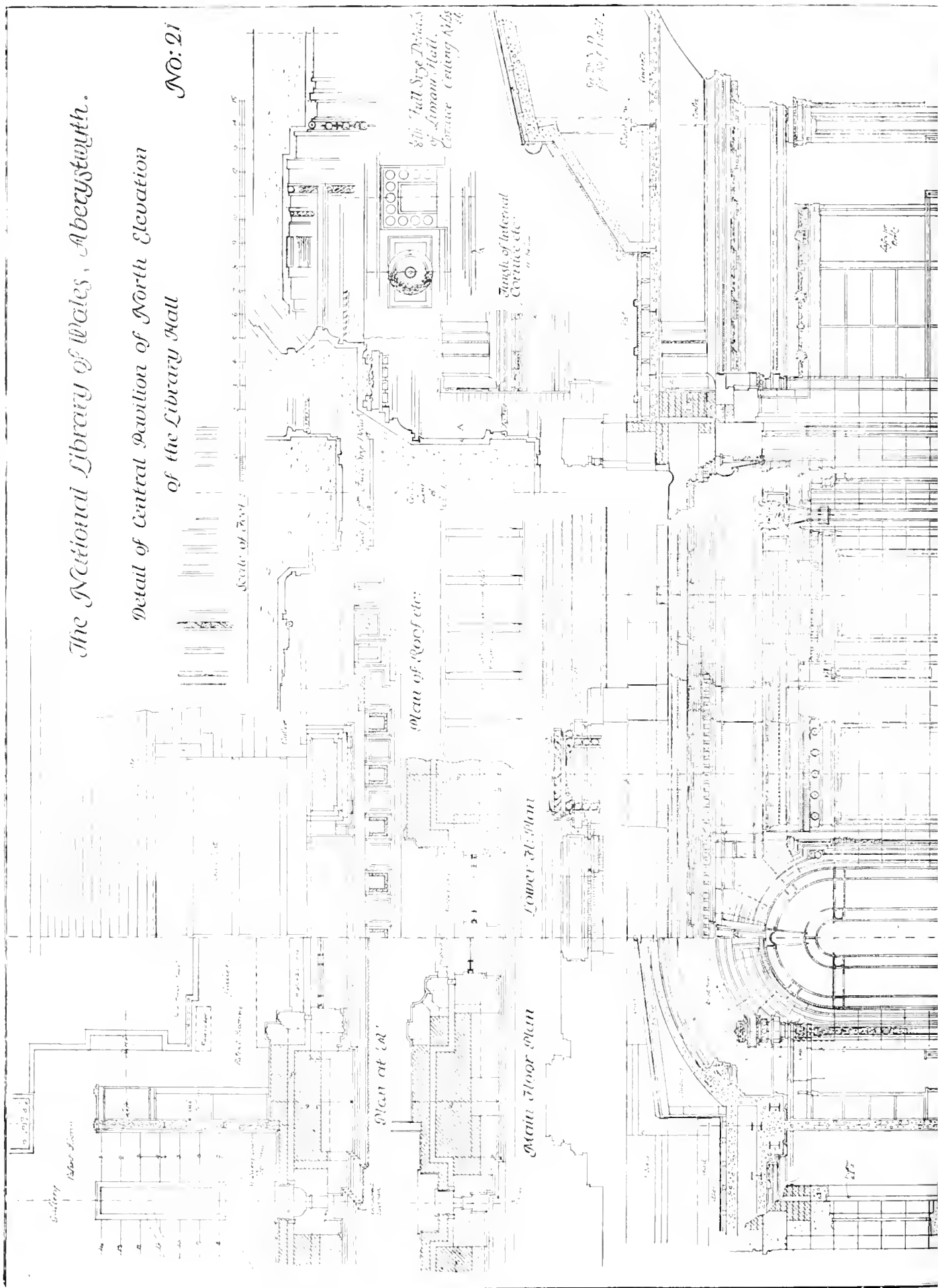




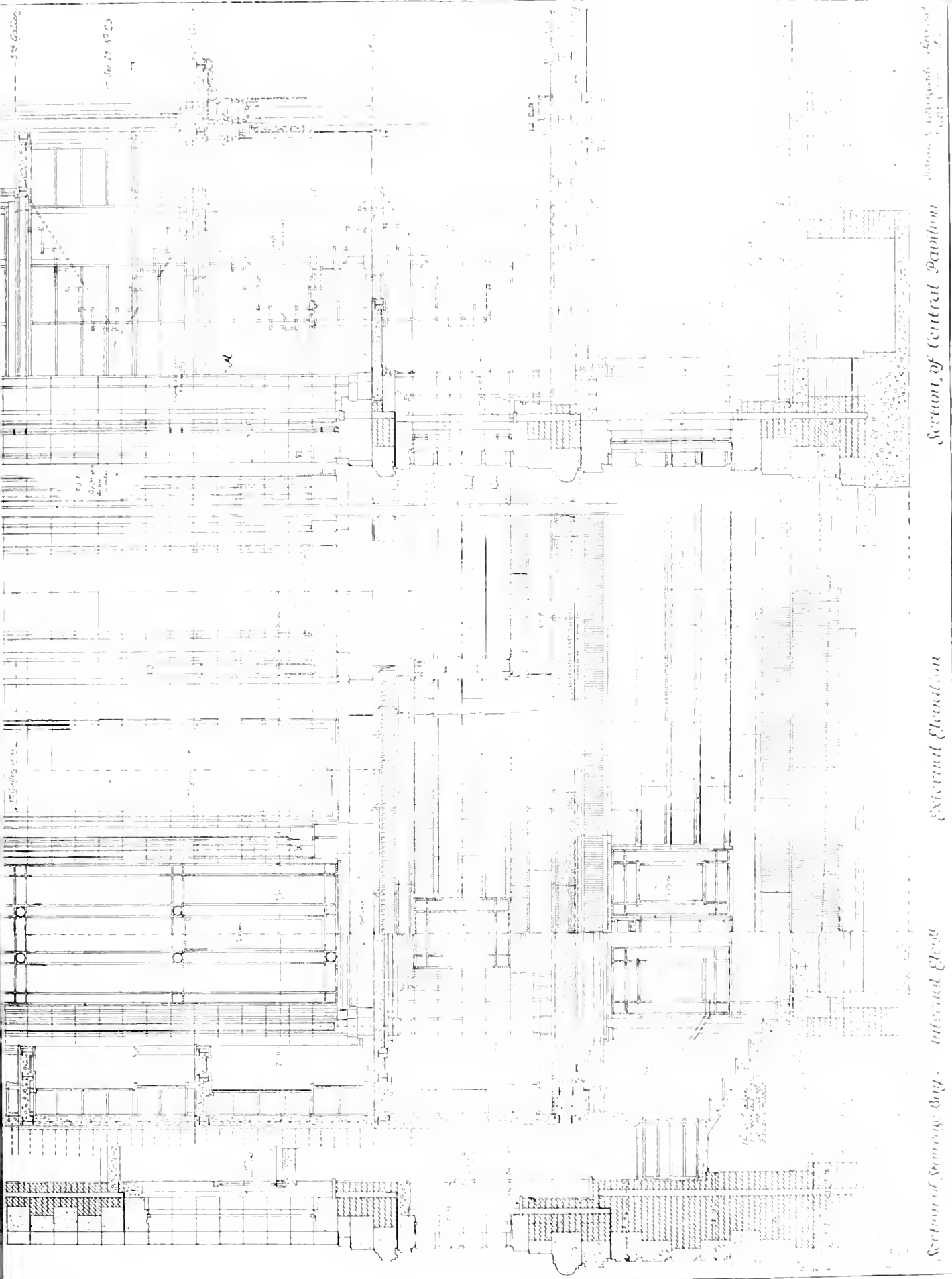
*The National Library of Wales, Aberystwyth.*

*Detail of Central Pavilion of North Elevation  
of the Library Hall*

No: 21







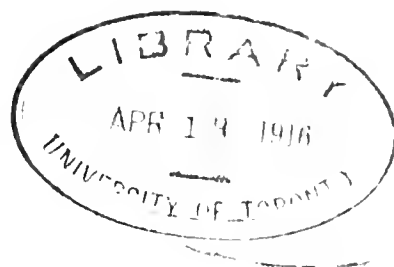
Section of Sewing Bay - Internal Elevation

External Elevation

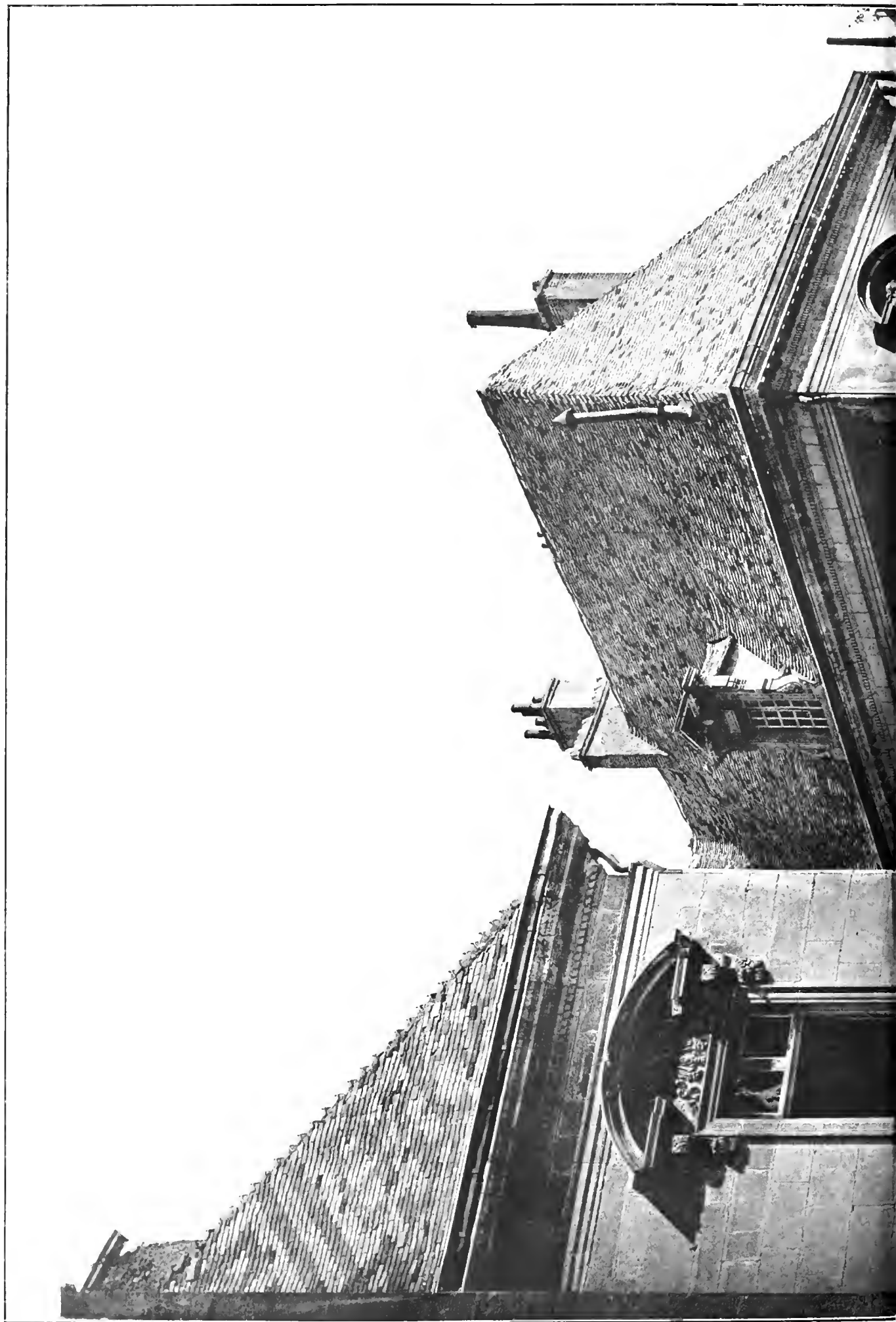
Section of Central Pavilion

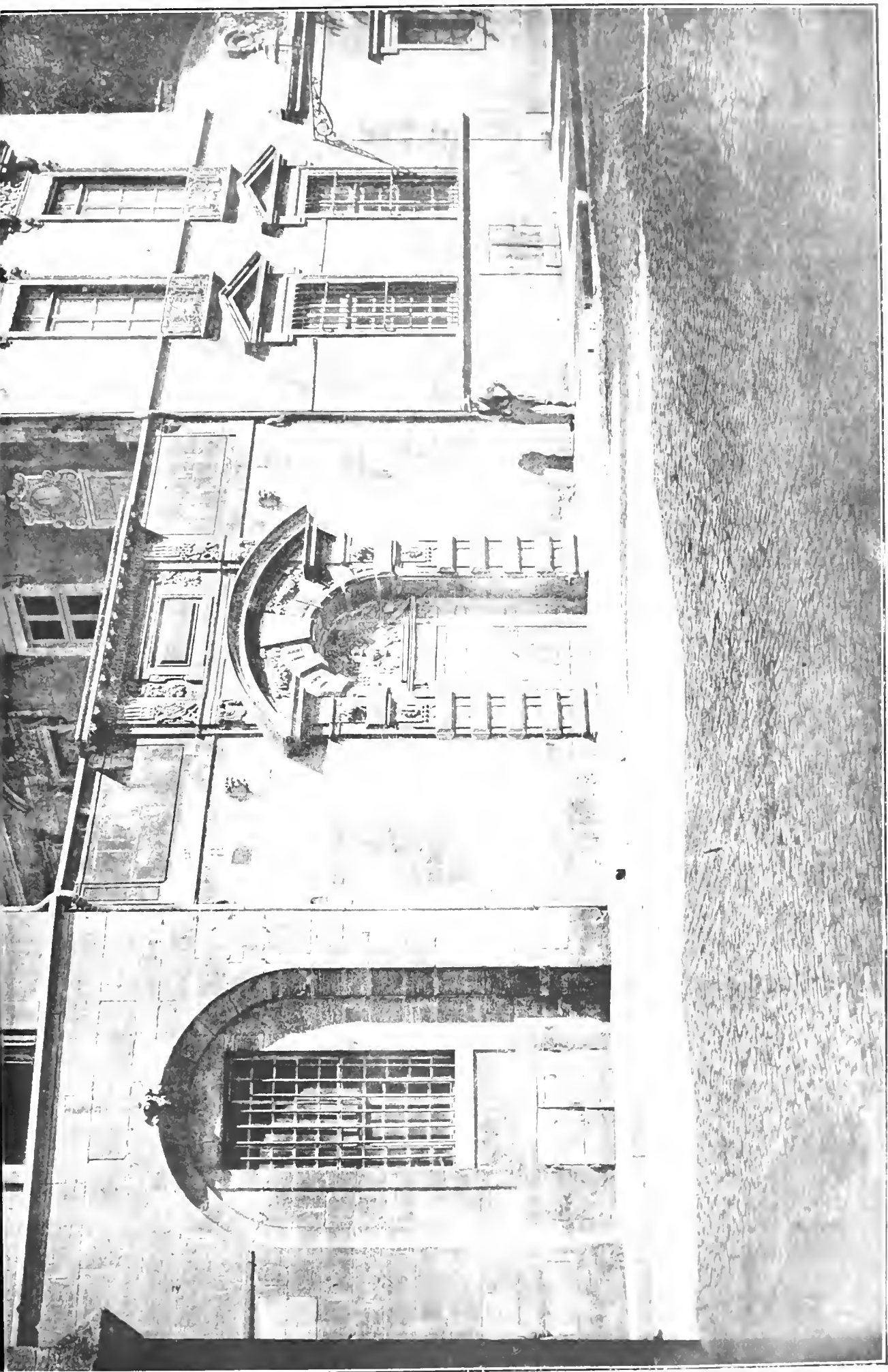
Plan of Central Pavilion



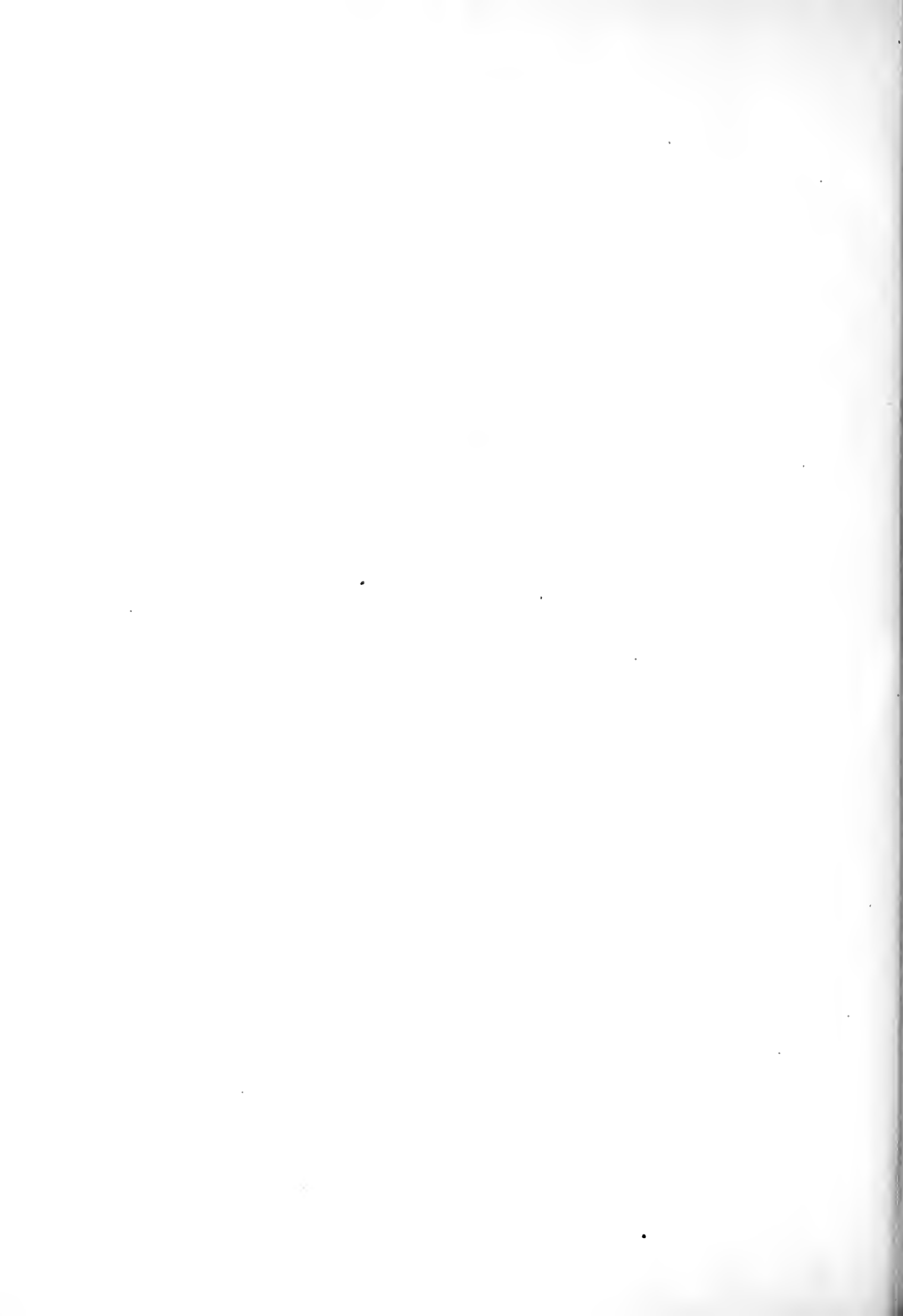


THE BUILDING NEWS, MARCH 22, 1916.

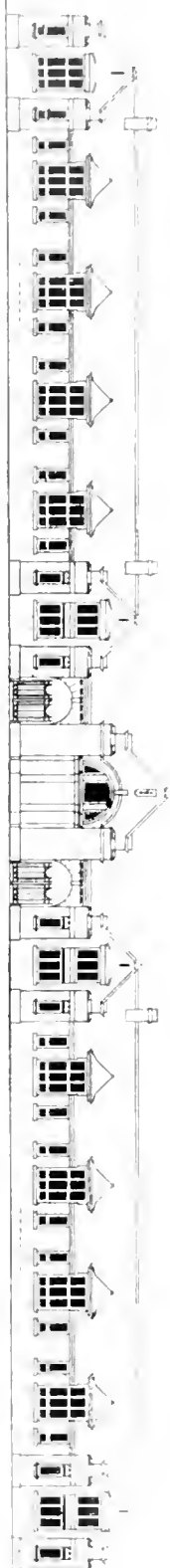




HOTEL VOGÉE. DIJON



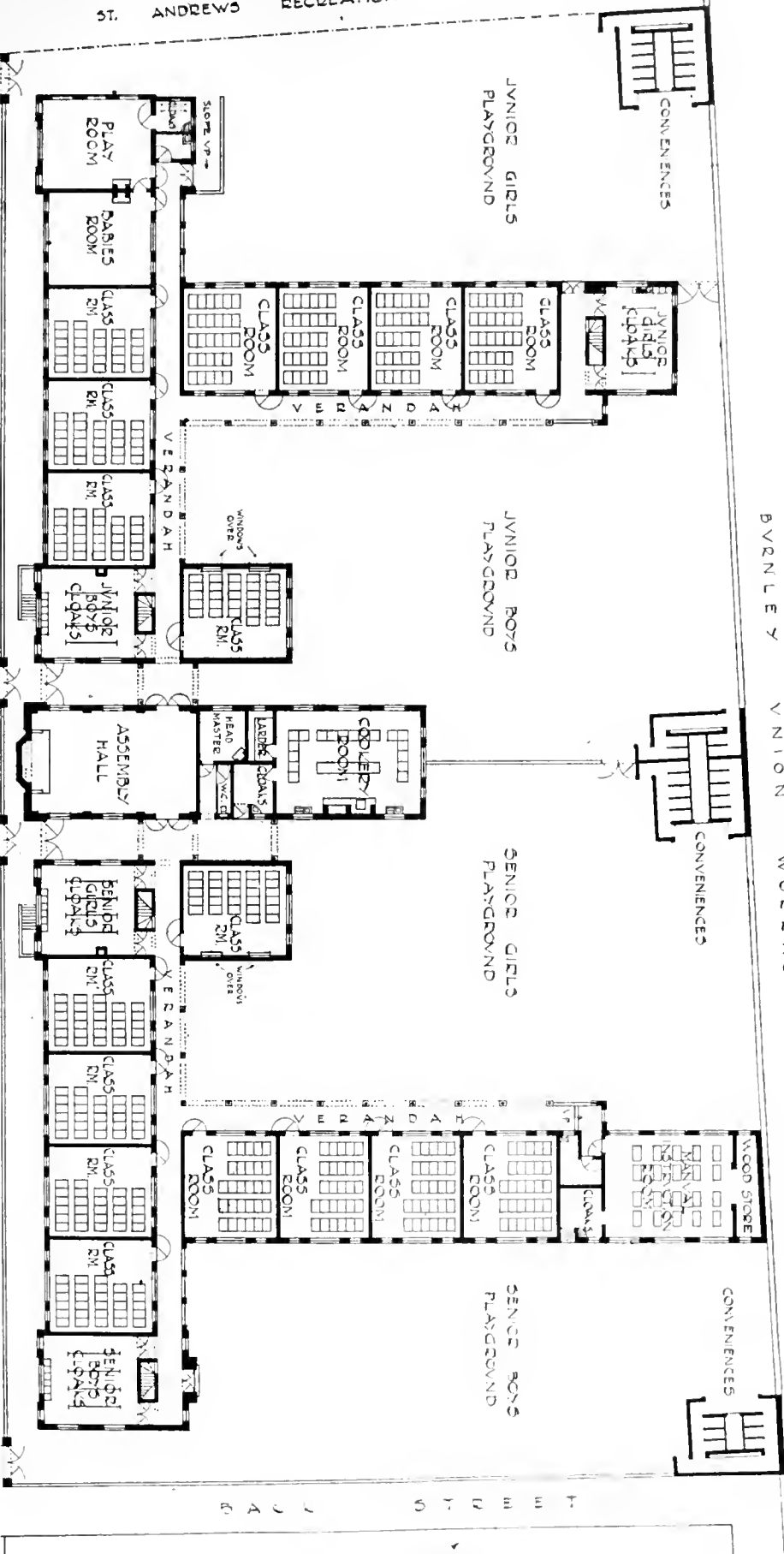




FRONT ELEVATION

BURNLEY UNION WORKHOUSE

ST. ANDREWS RECREATION GROUNDS



(JUNIOR DEPARTMENT 494)

GROUNDS PLAN

(SENIOR DEPARTMENT 494)

## Corrente Calamo.

The council of the Surveyors' Institution have had under consideration the problems of how to meet the difficulty caused by the calling up for service of married men or those with dependents, whose liabilities in connection with the occupation of their houses and other fixed charges cannot be met out of the separation or dependants' allowances. In the opinion of the council, the moratorium, which has been proposed in some quarters as a solution of the difficulty, is open to serious objections of a practical nature, which render its adoption inadvisable; and they favour instead the acceptance of the burden, subject to proper safeguards, as a national charge. The views of the council have been embodied in a communication on the subject addressed to the President of the Local Government Board. The opinions expressed are identical with those we have expressed from the first. Already, in various directions, relief where afforded by the Government has been at the expense of those who have contributed both in purse and person to the national exigencies, and it is surely time that they should claim the same national recognition of their sacrifices that has been afforded to others.

Why, well asks Mr. S. Arthur Peto, writing from Downs Court, Sandwich, to the *Times*, whenever wood paving falls to be renewed, is the concrete foundation laboriously broken up and re-made? In the earlier days of wood paving each surveyor appeared to disapprove of the precise degree of camber prescribed by his predecessor, and this afforded an excuse for relaying the concrete, but nowadays even this reason has disappeared. When Piccadilly was being re-laid some weeks ago, curiosity prompted Mr. Peto to inspect the condition of the old concrete, and he found that the wood blocks had been laid and the road used before the concrete had set hard, and that consequently the wood blocks had been forced into it to an extent which must have resulted in an uneven surface to the roadway, increased wear to start with, a shorter life, and in this instance a real necessity for renewed concrete. Properly gauged and laid cement concrete foundation should outlast an indefinite number of renewals of wood blocks. The waste entailed by cutting through new and expensively laid roadways by unco-ordinated authorities for the purpose of laying various services of pipes, etc., has been frequently commented upon, but it still seems inseparable from this most expensive and most unsatisfactory disturbance of our thoroughfares.

There are, of course, as Sir J. F. L. Rolleston, writing from the Carlton Club to the *Times*, points out, reasons of a sort for the retention of the Valuation duties, which are clearly political, which, notwithstanding the pretended trace, appear largely to permeate Government action. Hence we hear from time to time that the abandonment of a proposal or policy is excused on the ground that it would not be agreeable to a "section of the House," and so it appears that these sections of the House with their congealed prejudices rule. We have seen this in the case of the famous Agricultural Committee, in the policy of the taxation of imports, and notably in that of the land taxes. There is a quaint but intelligible saying in the country when the lesser rules the greater that the tail wags

the dog, and so it is with the Government. How else can it be explained that in view of the great needs of the war, and the importance of making their taxation as little unpopular as possible, they dare to risk setting and maintaining an important section of taxpayers against them by a system of irritating taxation, the injustice of which those who are versed in the subject must be sick and tired of exposing? How otherwise is it that in view of the need for large borrowings they dare to waste the taxpayers' money in this bullying of a certain section of property owners, to the great depreciation of their property and the further and consequent loss of potential taxable value, except that if they were to do that which was in the interests of the country as a whole they would offend a "certain section of the House"? Surely, as Sir John Rolleston remarks, the retention of some of these taxes, the foul brood of a former Chancellor, and the unfulfilment of promised remedial legislation is breaking the political truce, and for that retention and unfulfilment the Government as a whole is responsible. People may well be apprehensive lest when it comes to the arrangement of the terms of peace that these may have to conform to the views of a "section of the House."

Louis Raemaekers, the famous Dutch cartoonist, has generously drawn for the National Committee for Relief in Belgium one of the most remarkable and certainly the most heartrending of all the "war posters." A Belgian woman, with a ragged red cloak over her shoulders, is holding tightly to her breast an infant in a shawl. Around the child is clasped the mother's hand—a hand which spells starvation. In the woman's face there is the infinite sorrow of motherhood, driven to despair by German inhumanity, and the pitiful, helpless yearning to relieve the child's suffering. But it is in the face of the child that Raemaekers has told the full horror of the tragedy of Belgium. The staring terror in the eyes that look up at the mother makes one shudder and turn away to think what might have been in England. With remorseless realism Raemaekers, in this infant of pain, has visualised to the world the infamy of Germany. The poster has this laconic heading: "In Belgium." Underneath appears the one word "Help." Any reader mentioning this paper can secure a copy of the poster free of cost by sending a postcard to the Hon. Secretary, National Committee for Relief in Belgium, Trafalgar Buildings, Trafalgar Square, London.

Sanguine Americans assure us that the time is at hand when the great Mississippi River—the "Father of Waters"—will be restored to its old proud position as the greatest artery of commerce of the Republic. After thirty years of inaction steps have been taken to revive navigation on a large and dependable scale, and in the spring the first of the thirty-six fast steel barges now being built will begin plying between New Orleans and Minneapolis. Nearly 60,000,000 dollars have been spent or will be expended in building one of the greatest ports in the world at New Orleans. Davenport, Iowa, is spending about 1,000,000 dollars in building a sea-wall and installing modern terminal facilities, and Minneapolis is spending about 300,000 dollars in building a river terminal. A Government dam will give that city an average of 8 ft. of water off the new wall, so that some time this year Minneapolis actually will become the head of navigation on the river. St. Louis is building the first unit of a modern co-

ordinated river-rail terminal, and Muscatine, Iowa, has appropriated a large sum for the first unit of a concrete terminal. The port of New Orleans will, we are told, be "one of the wonders of the world" when fully completed. At the present time it consists of 41.4 miles of river frontage, all under the control of the City Dock Board. This harbour has a developed area of more than seven square miles, while the deep-water area within the port limits totals 11 square miles. The harbour varies in depth from 40 ft. to 138 ft. In time, should conditions warrant it, steel sheds and wharfage facilities could be extended from Point à la Hache to Baton Rouge, about 178 miles, which would provide a deep waterway harbour of 85 spare miles.

The dustman was always more or less of a poet in the days when his cart was as yet unmarked by the stern prohibition, "No gratuities." Who was it, in the days of our gilded youth, that sang

My name is Adam Bell, 'tis clear,  
'Cos Adam was the first man;  
And, by a coincidence clear,  
Why I'm the first of dustmen?

Now that borough councils will not let him remove aught but dry dust, and we see him only once in three weeks or so, he has evidently hung his harp on a willow tree somewhere, and his mantle has fallen on his superior, the M.O.H. Dr. W. P. Warren, of Enfield, drives the lesson of burning the refuse well home. He has arranged for a local picture palace to throw on its screen four slides giving Health Hints to Housewives. Three of these in bald prose tell how money can be saved by the burning of all combustible waste matter. The fourth, in verse, is really not so bad for a first attempt:

The dustman to the war has gone,  
Midst shot and shell you'll find him;  
His work has got to be carried on  
By the few he's left behind him.  
You housewives ask what you can do.  
A lot, a lot depends on you;  
You'll stop the rates from going higher  
By burning refuse on your fire.

The Elgin Town Council have increased the salary of their surveyor (Mr. A. A. Turriff) from £200 to £225 a year.

Mr. Robert Herron, of Chipchase Forest Hall, Northumberland, plumber, died on March 9 intestate, leaving £74,223.

A faculty has been granted by the Chancellor of Oxford Diocese for the erection of a two-light stained-glass memorial window on the south side of the nave in the parish church of Bourton-on-the-Water.

The funeral of the late Mr. R. L. Barker, one of the best known county land agents in Chester and North Wales, and the senior city magistrate, took place on Wednesday at the Chester Cemetery.

Mr. Ingham, of Barnoldswick, has been appointed surveyor and sanitary inspector to the Rawdon Urban District Council, at a salary of £150 per annum. There were between eighty and ninety applicants for the post.

The Huddersfield Town Council have authorised steps to be taken for the extension of the Technical College, for the teaching of chemistry, consequent upon the developments now pending in connection with British Dyes, Limited.

An agreement has been executed between the rural district council of Guiseley and the local waterworks company by which the latter are to transfer to the council the whole of their undertaking for the sum of £16,000 (at the rate of £2 per £1 capital), plus the present and any further outlay on a borehole which is now being made.

Mr. Fernand Parmentier, of Los Angeles, secretary of the Southern California Chapter of the American Institute of Architects, is reported to have been killed in action in the Dardanelles. Mr. Parmentier was among the first of his countrymen to respond to the call to arms. His letters from the trenches to his associates in the Institute Chapter were interesting features of recent meetings. His untimely death ends a career marked by high ability in his profession.

## Our Illustrations.

### HOTEL VOGUE, DIJON.

The Early Renaissance façade of the Hotel Vogue fronts the Rue Notre Dame, a narrow thoroughfare in the centre of Dijon. It was built between 1607 and 1614. The richly ornamented portal opens into the courtyard between the wings. On the ground floor is a large apartment having a decorated ceiling, a typical chimney-piece of 1616, and some fine tapestries.

### THE NATIONAL LIBRARY OF WALES, ABERYSTWYTH.

This is a detail of the central pavilion of north elevation of the library hall, and the third of the promised series, the two others having appeared, one on March 8, when a bird's-eye view and key plan of the building was given, and the other in our issue for March 15. The position where this detail is taken is marked on key plan No. 3. Mr. Sidney K. Greenslade, of Gray's Inn Square, is the architect. An account of the building was also published in our last issue.

### RESIDENCE, NEWTOWN-STANHOPE, WEARDALE, DURHAM.

The house illustrated has recently been built for Mr. G. P. Roddam, J.P., at the west end of Stanhope, Weardale, County Durham. The site is an ideal one, being sheltered from the north by the hills known as Stanhope Common, and the east by the belt of trees which surround Stanhope Park. Careful consideration has been given in placing all the reception and principal bedrooms to face south; the billiard-room and study to the west. The loggia, facing south, with access to hall and drawing-room, is approached from well-laid-out conventional rose gardens; and the main entrance, which is placed to the north, by a drive which runs through extensive gardens. The entrance-hall, which is carried up two stories, has been made a feature; the main staircase is carried out in oak, with parquet landings, and is lighted by large stained-glass, leaded windows: the first-floor landing, formed as a balcony and connected with well-lighted corridors, gives access to the principal bedrooms. The servants' working quarters are well placed and cut off from the main portion of house, but having an easy service to morning and dining rooms, with a subsidiary staircase for the easy working of first floor, and which also serves to give access to the children's nurseries from the east entrance from gardens. Lavatories, bathrooms, and stores are all conveniently placed; lavatories and bathrooms are tastefully wall-tiled, with floors laid in red tiles. The house is supplied with light by electric plant installed in a powerhouse conveniently placed, and situated near is the garage, which has easy access to the drive. The building is heated throughout to corridors and main rooms by hot water, on the low-pressure system, subsidiary to fire-places, and has a well-arranged domestic hot water supply carried out in copper piping. The whole of the outer walls are carried out with sneaked rock-faced rubble, and the roofing is of red rosemary tiles, having well-projecting eaves, so that the house, being surrounded by gardens and well-wooded boundaries, makes the general colour scheme very pleasing. The windows throughout are steel casements, filled in with good-proportioned leaded panes; many of these windows are glazed with plate glass. The loggia and other entrance floors are carried out in ceramic. Messrs. T. Hilton and Sons, Bishop Auckland, were the general contractors for the work; plastering by Mr. Sabley Kirby, painting and decorating by Mr. Bellerby, both of Bishop Auckland; sanitary fittings supplied by Messrs. Shanks and Co.; tiling and ceramic work by Messrs. Emley and Sons; electric plant and lighting installed by Messrs. Falconer Cross and Co.; heating and domestic hot water supply installed by Messrs. Dinning and Cooke—all of Newcastle-on-Tyne. Steel casements, leaded lights, and stained glass were supplied and fixed by Messrs. Abbott and Co., of Lancaster. Mr. John G. Burrell, Lieut. R.I.B.A.,

of Market Place Chambers, Durham, was the architect.

### LIONEL STREET AND CUTHBERT STREET SCHOOLS, BURNLEY.

These two schools are the first schools in Burnley to be designed on the open-corridor principle. Both have received the approval of the Board of Education, but owing to the war the erection has been deferred. The schools are to be built of brick, faced with 2½-in. Acerrington facing bricks, and roofed with Welsh slates. The plans have been prepared in the office of Mr. G. H. Pickles, M.Inst.C.E., borough engineer of Burnley, Mr. C. B. Metcalfe, A.R.I.B.A., being the architectural assistant in charge of the work.

### OBITUARY.

We much regret to record the death of Mr. Henry Wells Dewhurst Theobald, the well-known surveyor. Born in 1844, he early became a pupil and assistant in the firm of Gardiner and Bell, quantity surveyors, of 110, Great Russell Street, and upon Mr. Bell's retirement, he was taken into partnership by Mr. Gardiner, a gentleman of marked personality and great authority in his own profession. In time Mr. Theobald worthily succeeded as the head of the firm, and for many years carried on a large practice, under the title of Gardiner, Son, and Theobald, and subsequently Gardiner and Theobald. During the last twenty years he was assisted by his son Mr. J. M. Theobald, who will continue the practice. Mr. Theobald was engaged on a large number of important buildings, including many erected by H.M. Office of Works. He was elected a Fellow of the Surveyors' Institution in 1883. His courtesy, integrity, and thorough knowledge of his work led to his being frequently asked to act as arbitrator in building disputes. The many architects with whom he was necessarily much in contact will remember his ability and attention to the interests of their clients. On the other hand, he was not unmindful of the rights of the builder, particularly in complicated questions of account where he was practically the arbiter. Mr. Theobald died at his residence, Henley House, Spring Grove, Isleworth, on the 9th inst., after a short illness.

At the top of a gully called Brown Dip, on the Peninsula of Gallipoli, is a simple grave, marked with a border of stones and a white wooden cross, bearing the inscription, "Sergt. L. J. Finning, No. 129, 24th Inf., A.I.F., killed in action, 4th October, 1915." This is the last resting-place of Sergeant Leonard John Finning, who went to Australia between eight and nine years ago. He was born at Pinhoe, a quiet village near Exeter, in Devonshire. He was the only son of Mr. John Finning, a builder, and was educated at Hele School. After leaving school he was articled to Messrs. Commin, Son and Bolley, architects, of Exeter, till he passed his intermediate R.I.B.A. examination. He then went to Melbourne, where he worked for some time in the offices of Messrs. Oakden and Ballantyne, subsequently going to Sydney for a while. After a few years thus spent in gaining knowledge and fitting himself for the profession he had chosen, he returned to England to undergo his final examination. This he successfully passed, and was afterwards an Associate of the Royal Institute of British Architects. He then went to the United States, and there, in Chicago, added greatly to his already wide experience. Again—about two and a half years ago—Mr. Finning returned to Melbourne, and on June 30, 1914, he was unanimously elected an Associate of the Royal Victorian Institute of Architects, and, until the time of his enlistment for active service, was again associated with Messrs. Oakden and Ballantyne. His military career was marked with the same devotion and assiduity which had given so much promise of a career of a successful architect. Although he joined the 24th Battalion of Infantry as a private, he quickly became a corporal, and before he left for Egypt, where he spent about two or three months, he had gained his third stripe. Before going to the front he had, at the expressed desire of the G.O.C., attended a school of instruction, and was finally recommended for a

second lieutenantancy. He would doubtless have assumed this commission had he been spared, for, to quote from the letter of the officer commanding his company, they "were daily expecting confirmation of the recommendation."

Lieut. E. Hugh Hough, Dabridge-on-Hough, Second Lieut., 8th East Yorkshire Regiment, Probationer of the Royal Institute of British Architects, was killed in France on January 18, aged 18 years, and 9 months. Second Lieut. Hough was the only child of Mr. and Mrs. E. Hugh Hough, of 65, Tennyson Avenue, Bridlington. He was educated at the Bridlington Grammar School, duly passed the R.I.B.A. Preliminary Examination, and was registered Probationer in July, 1914. It had been arranged for him to serve his articles with Mr. John Bilson, F.R.I.B.A., of Hull. Being gazetted Second Lieutenant shortly after war broke out, he was posted to the 8th East Yorkshire Regiment, and in December, 1914, he passed the examination qualifying for lieutenant's rank. He left for France on October 6, 1915, and had been employed at the trenches and on sapping and mining work.

### PARLIAMENTARY NOTES.

PURCHASING OLD MASTERS IN WAR TIME.—In answer to Mr. Anstruther Williams in the House of Commons on Tuesday in last week, Mr. Montagu, Financial Secretary to the Treasury, said that the National Gallery Trustees had paid £9,000 for a "Madonna and Child," attributed to Masaccio, and £5,000 for "The Music Party," by de Hooch. In making this statement Mr. Montagu, referring to the de Hooch, said he saw no reason to modify the views already expressed, that he "entirely dissociated himself from the Trustees' action in buying pictures in time of war, when the difficulties of finding the money necessary to carry it on were so great." As to the "Madonna and Child," however, Mr. Montagu thought that had the panel been allowed to leave the country it would have been an irreparable loss to the nation.

### TRADE MOVEMENTS.

DEMARCATION IN THE BUILDING TRADES.—The first meeting of the National Building Trades Demarcation Committee has just been held in London. This body is the outcome of an agreement which has been arrived at between the Employers' National Associations and fifteen workmen's societies, under which all questions or disputes relating to demarcation of work are to be referred to standing joint committees with a view to amicable settlement, without resort to strikes. Local Demarcation Committees are to be formed in each district. The agreement affects 500,000 men employed in the trade.

### TRADE NOTES.

The extensions to Wilberby Asylum, Hull, have been supplied with Shorland's special inlet and extract ventilators, by Messrs. E. H. Shorland and Brother, Ltd., of Failsforth, Manchester.

Under the direction of Messrs. Sydney Mitchell and Wilson, architects, Edinburgh, the Boyle system of ventilation (natural), embracing Boyle's latest patent "Air Pump" ventilators and air inlets, has been applied to Hairmyres Sanatorium, Lanarkshire.

With all tanks constructed to contain liquids the importance of an impervious concrete cannot be too greatly insisted upon. We learn that a tank on Lord Donoughmore's estate at Knocklofty, Clonmel, was constructed with Puddock cement concrete two years ago. Upon a recent examination it appears to be in a perfect condition. It had been subjected to a severe test in the interim.

H.H. the Maharajah of Kapurthala has placed an extensive order for painted ironwork comprising the area of five salons at his palace, Kapurthala, with Messrs. Dunning and Co., of St. John's Wood, N.W. This firm informs us that since the closing of the Elz and Co. factories, and others, they have received inquiries from all parts of the world to such a greater extent than before.

Mr. Thomas St. John, one of the oldest members of the Ancient Order of Druids, died at Eastbourne on Wednesday, aged ninety-one. He was a carver in wood and stone, and helped to carve the King's Throne chair in the house of Lords, and a few years earlier executed woodcarving in Osborne House.

## Building Intelligence.

**WINNIPEG, MAN.**—Three large schools have recently been erected by the Sutherland Construction Company for the Municipality of East Kildonan, a suburb of Winnipeg. Each of these schools is of the same design and practically the same size, and all have been built from plans by Messrs. J. D. Atcheson and Co., of Winnipeg. These three schools each have a stone and concrete foundation. The outside finish is Fort William pressed brick, backed with hollow tile, the division walls being of the same tile, made in Medicine Hat. All windows are steel sash. Each school is of two stories and a basement, and cost approximately \$50,000. The basements, which are 11 ft. high, are used as playgrounds. The interior finish is oak, and the floors in the corridors are of mastic asphalt. All floors in classrooms are of reinforced concrete covered with maple. The roofs of all three schools are sheet metal. The buildings are steam-heated and electric-lighted.

### PROFESSIONAL AND TRADE SOCIETIES.

**AN ANCIENT BORDER PRIORY—LANERCOST.**—Mr. Hippolyte J. Blanc, R.S.A., has delivered an address in St. Cuthbert's Hall, Edinburgh, to the members of the Scottish Ecclesiological Society on the Priory of Lanercost, which is situated on the Cumberland border south of Carlisle. Professor Cooper, Glasgow, presided. Mr. Blanc explained that Lanercost was a foundation of the Augustinian Canons. When Henry II., in 1167 A.D., wrested Cumberland from the Scots, he granted to Robert de Vallibus the lands of Lanercost, and it was this noble who was the founder of the Priory, which was consecrated in 1163 to the "blessed Mary Magdalene." In 1280 Edward I. and Eleanor, his Queen, were received at the Priory with considerable ceremony and great hospitality; in 1306 when the same monarch led his army against Scotland, he was too feeble to go further than Lanercost, where he remained for about a year. Before leaving, the King presented other revenues to the Priory to assist to restore its status, which had been much impoverished by the plunderings of the opposing armies. The church of the Priory took about seventy years to build. The earlier portions showed lingering features of Norman character when the First Pointed style was just emerging from the Norman. There were two distinct sections of building distinguishable. The second style was carried on in fully developed Early English, reaching a completion about 1260, but it was interesting to find such harmony of form and details as were manifest throughout. The Priory suffered greatly from Border warfare. The greater part of it is a ruin, though the nave is still used as the parish church. By the exhibition of a beautiful series of slides Mr. Blanc was able to show in general and in detail the architectural features of the old building. Mr. Mackinley moved, and Dr. Thomas Ross seconded, a vote of thanks.

**NOTTINGHAM AND DERBY ARCHITECTURAL SOCIETY.**—On Tuesday evening, March 14, the fifth meeting of the session was held at the School of Art, Nottingham, when the vice-president, Mr. H. G. Watkins, F.R.I.B.A., delivered a lecture on "Lincoln City and Cathedral" before a large audience, which included lady friends of the students of the School of Art, who had been specially invited. The president, Mr. Harry Gill, M.S.A., briefly introduced the lecturer, and Mr. Watkins, who is a Lincoln man, then gave an interesting description of his native city. He first described and illustrated with lantern views the supposed position and arrangement of the city in the time of the Romans, and then rapidly described its progress and alterations in Norman and later periods up to the present time. Views of the principal historical buildings and remains of Old Lincoln were shown, and a concise history of the development of the Cathedral, usually called "The Minster," was given. A number of very beautiful slides of the interior and exterior were put on the screen, and even the history of the Lincoln Lipp and

his photograph were included. The interesting Corporation Plate was also described. At the close, Mr. Valentine Vuerwyck, a Belgian architect, at present resident in Nottingham, proposed a vote of thanks to the lecturer, which Mr. C. B. Sherwin, a former hon. sec. of the Derby Society, seconded. Mr. Watkins suitably replied, and seconded a vote of thanks, proposed by the president, that the thanks of the society be accorded the chairman and members of the committee of the School of Art, and Mr. Harrison and the members of the school, for so kindly placing the room and lantern at their disposal.

**ROMANO-BRITISH REMAINS AT CHARLTON.**—At the last meeting of the Kent Archaeological Society, held at the Maidstone Museum, Mr. F. C. Elliston-Erwood gave a lantern lecture on discoveries resulting from investigations carried out by the British Archaeological Society last year at a Romano-British site at Charlton. Mr. Elliston-Erwood, who was himself in charge of the excavations, described the situation of what now remains of the Romano-British site at Charlton, already deeply cut into by workings for sand, its existence on the Blackheath gravel being an indication that Roman habitation was entirely conditioned by the habitability of the soil. Of two fibulae unearthed, one belonged to about A.D. 80, while the other, which was of a type usually only met with in the north, was found in conjunction with typical second-century pottery. Thus they had definite evidence of the period at which the site was occupied. Another find was a loom weight, and this went to show that the community at Charlton was one that was engaged in weaving, in addition to pottery making and agriculture. The excavations had added in an important way to the archaeology of West Kent, to which Charlton, though now included in London, formerly belonged.

**THE SOCIETY OF ARCHITECTS.**—An extraordinary meeting of members of the Society was held at 28, Bedford Square, W.C., on Thursday afternoon, to consider a proposal brought forward by the Council to alter the Articles of Association. We are informed that the scheme was adopted, but that particulars will not be published until after they have been confirmed at a second extraordinary meeting of members, to be convened at an early date.

**THE STAINED GLASS IN LINCOLN'S INN CHAPEL.**—At the meeting at Burlington House on Thursday night of the Society of Antiquaries Dr. William Martin read a paper on the topography of London as revealed in the stained glass of Lincoln's Inn Chapel. He remarked that in one of the windows of the south side there was a remarkable series of diminutive views of London, the original sketches of which were unknown, but it was evident that the stained-glass artist worked from faithful pictures then extant. These stained-glass pictures compared very favourably with the Elizabethan and Jacobean panoramic views of London, and it was remarkable that London topographers had not gone to the Lincoln's Inn windows to check conclusions they had drawn from other sources.

Mr. W. R. Hosking has been appointed surveyor and inspector of nuisances to the Fowey Town Council.

Extensive alterations and additions are about to be made to Messrs. George Mellis and Son's factory at the junction of North Esplanade and Russell Road, Aberdeen. The architect is Mr. G. B. Mitchell, of Aberdeen.

The general works committee of the town council of Barup recommend that plans be approved for a reinforced concrete water tower at Lamb Holes Mill, for Messrs. Mitchell, Ashworth, and Stansfield, Ltd.

Princess Arthur of Connaught has formally opened Bedford House, 8, York Place, Baker Street, formerly Bedford College, as a residential club for educated girls earning their own living. The cost of the purchase of the college, alterations, and furnishing has been £11,060.

Mr. Asquith, after the Easter recess, will unveil in St. Paul's Cathedral the bronze bas-relief to the memory of Captain Scott and his five companions, who were lost on the return journey from the South Pole in 1912. Earl Curzon has written the inscription. Mr. S. Nicholson Babb is the sculptor.

## Our Office Table.

A meeting will be held on Thursday, March 30, at 7.45, at Limes Hall, Limes Grove, High Street, Lewisham, and another on the following day, Friday, March 31, at the same time, at Croydon Public Hall, George Street, Croydon, with the object of forming local associations of master painters, decorators, and kindred trades for the districts of Lewisham, Deptford, Greenwich, Catford, Forest Hill, Ladywell, Hither Green, Lee, Blackheath, Brockley, and New Cross, and also for the districts of Croydon, Thornton Heath, Waddon, Sutton, Carshalton, Hackbridge, Wallington, Beddington, Purley, Addiscombe, etc. Every employing painter, builder, etc., is earnestly requested to attend. The speakers will include several gentlemen representing the National Association of Master House Painters and Decorators, and others representing the London Association of Master Decorators. Tickets of admission may be obtained from Mr. Arthur S. Jennings, Editor of *The Decorator*, 365, Birkbeck Bank Chambers, High Holborn, London, W.C.

The diplomas and certificates gained by the students of the Edinburgh College of Art at the end of last session were presented by Lord Provost Sir Robert Kirk Inches in the Sculpture Hall of the College, Lauriston Place, on Tuesday in last week. Mr. Morley Fletcher, Director of the College, reported that although many members of the staff and students were on military service, the standard of the work carried out had not been reduced. Diplomas were presented to the following students:—Drawing and Painting—John M. Jarvis, Alex. Aytoun Young, Design—Mary W. Angus, Dorothy E. Bisset, Eileen N. Lewis, Andrew B. Milne, Isobel N. MacEwan, Elizabeth N. Prescott, Helen M. Sveinbjörnsson. Architecture—Hugh M. Ewing, R. Philip Shaw, Archie B. Young. Architecture—Special Certificate—Alexander G. Forgie, George Reid. Both George Reid and Alex. G. Forgie were awarded travelling scholarships of £40 and £20 respectively. Both joined the 9th Royal Scots. The former was wounded and is at present in Dalmeny House Hospital, and the latter is at present at the front with his battalion.

A novel water-purchase scheme has been arranged by the Rochdale, Bury, and Oldham Corporations and the Manchester, Liverpool, and Counties Commercial Motor Users' Association, in conjunction with the North and East Lancashire Commercial Motor Users' Association. Water for such vehicles may be obtained from fountains in the three boroughs by drivers holding discs, which will be placed in slots in the fountains, and so indicate when water is drawn. The scheme, which comes into force on Saturday next, is an experiment, and fountains are being erected in each of the three towns.

The Oxford University Press will publish shortly another volume by Mr. Francis Bond in the well-known "English Church Art" series, entitled "The English Chancel." For the first time a detailed history is given of the English altar and its successor, the Communion table; also of the seventeenth-century controversies by which altar rails were introduced, and placed sometimes on all four sides of the table, sometimes on three sides, and finally on the west side only; with this is incorporated an account of the various forms of the English reredos and other accessories of the altar. Then comes a description of the piscina in both its forms, the credence shelf, and the sedilia. The existing examples of the East or sepulchres are illustrated, and the remarkable ritual of Passiontide is described. On no member of the English Mediæval church was such consummate art expended as on the sedilia and piscina, and these and the other contents of the English chancel are very fully illustrated.

In the course of some notes on the causes for the cracking of concrete floors, Mr. T. Davis, H.M. Inspector of Factories for Kent, observes that, in addition to the obvious reason that builders often use too much sand in proportion to the cement, an insufficient thickness and bad foundations, there are others due to ignorance when the intention is

The largest concrete bridge in the world has recently been completed, viz., the Tunkannock Viaduct of the Delaware, Lackawanna, and Western Railroad—carrying three lines of rails. It is 2,375 ft. long, with ten 200 ft. arches and a maximum height of 245 ft. above the stream in the valley it spans. It is situated a few miles west of Clark's Summit, and is part of an undertaking for reducing the gradients and shortening a section of the railway from 43 to 39½ miles, at a cost which has exceeded £2,400,000, on the route between New York and Buffalo.

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RECEIVED - W. L. & L. S. Co., Ltd.-C. P. K. and Co.-F. McN. and Co.-G. G. S.-B. and A.-G. G. and Co. L. F. Co., Ltd. W., Ltd.-J. W. V. W. and J. F. R. T.

R. G. Yes.

T. P. L. Please send.

W. F. X.-The allowance is a fair one under the circumstances. 2. Yes.

Q.—Mr. Alfred Waterhouse was the architect of the Hotel Metropole, Brighton. You will find an illustration of the building in our issue of May 10, 1889.

TO ALL AND SUNDRY. To prevent disappointment, owing to restricted and later postal deliveries, it is not safe to wait till Tuesday morning to send us advertisements for the current week's issue. Many reach us after 3 p.m., at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order the **BUILDING NEWS** regularly of their newsagent or book-stall. With the present shortage of paper and probable still further rise in its price, it is futile to expect a newsagent to saddle himself or us with surplus unsold copies to oblige chance customers, on which, moreover, he or we have to pay heavy increasing carriage charges.

## TO ARMS!

THE BATTALION CENTRAL LONDON  
VOLUNTEER REGIMENT  
ORDERS FOR THE WEEK ENDING, MAY 11  
OFFICER FOR THE WEEK: P. S. H. Brown  
N. J. Brown  
NEXT FOR DUTY: P. S. H. Brown  
Bord

GENERAL PALMOL: Signed March 1997  
 Chester House, 24 Copple, 100 York Road, Littleton, CO 80120  
 Every member is urged to make a personal effort to  
 attend to ensure a good number.

SCHOOL OF ARMS. The day March 11, 1974, in  
a Month 1974.

LECTURES: Tuesday, March 21, 7:45-8:15 p.m., Company Commander F. G. Downing, "Company Drill"; Thursday, March 23, 5:45-6:15 p.m., Instructional Parade, Company Commander J. J. Castell.

**DRILLS AND PARADIGMS** For details of all drills and paradigms, see instruction book at <http://www.english.ual.ac.uk>.

and parades, see notices-board at headquarters.

**ENTRESCING PARADE**—Sunday, March 29, as usual, Victoria Station 8.45 for 8.50 train, and Cannon Street 9.15 for 9.30 train. This is the last parade at Wollingham, and members are asked specially to attend.

**EASTER CAMP** Names should be given in as soon as possible to the company sergeant-majors. Every Volunteer should make a special effort to attend, as the course of instruction will be a special one.

By Order,  
MACLEOD YLARKLEY, Adjutant.  
March 16, 1916.

MEETINGS FOR THE ENSUING WEEK.

THURSDAY (to-morrow). Architectural Association of Ireland. Discussion on "Fads." 15, South Frederick Lane, Dublin. 8 p.m.

**FRIDAY (March 24).—**Glasgow Architectural Crafts-  
men's Society. Annual Meeting and  
Sketching Club Exhibition. 2.45 p.m.

**SATURDAY** (March 25).—Institution of Municipal Engineers, North-West District Meeting at Metre Hotel, Manchester. Discussion on "Activated Sludge and Sewage Disposal," by W. H. Duckworth, of Saltord.

Institution of Municipal and County Engineers, Eastern District Meeting at the Town Hall, Acton. Discussion of paper by F. Sadler on "The Duties of a Municipal Engineer in connection with Factories and Workshops." 11 a.m.

Institution of Municipal and County Engineers, North-Eastern District Meeting at Union Offices, High Street, Doncaster. "Sewerage in the Doncaster Rural District," by W. R. Crabtree, M.Sc., Surveyor to the Doncaster Rural District Council; "Town Planning, with Special Reference to the Doncaster Rural District Area," by Percy Morris, Town Planning Assistant to the Rural District Council, Doncaster. 2.30 p.m.

MONDAY (March 27).—Royal Institute of British Architects. Special Meeting to confirm the resolution passed on March 13 applying to the Privy Council for sanction to the suspension of by-laws so as to permit of the postponement of the re-election of council and officers from June 30, 1916, until June 30, 1917.

Tuesday (March 28).—Royal Sanitary Institute. Discussion on "Made-down and Tenement Houses," to be opened by G. M. Pettit, Chief Sanitary Inspector, Kensington. 4.15 p.m.

WEDNESDAY (March 29). St. Paul's Ecclesiological Society. "Freaks and Fancies of Cathedral Builders," by F. G. Linder, St. Paul's Chapter House, E.C.  
8 p.m.

Northern Architectural Association  
Annual Meeting.

In connection with the plans for reconstructing the Ottawa Parliament Buildings, two architects, Mr. John A. Pearson, of Toronto, and Mr. Marchand, of Montreal, have been appointed to examine the old walls and see how far they can be utilised in rebuilding.

Mr. Edwin Seward, F.R.E.A., who is removing to Weymouth, is recovering his professional connection with South. He has asked Mr. F. A. Beyer, architect and sculptor, to join him in the conduct of his practice, and it is his intention to visit the city next spring on a month on business matters.

At the meeting on *February 17* of the Incorporated Church Bazaar Society, a list was made towards building the Church of Goodmayes, St. Paul, Essex, £100; and St. Andrew, St. Margaret, and St. Nicholas, London, £20. Grants were also made towards building the Church of St. Hilary, St. Leonards, Yorks, £20; and repairing Wingham, St. Giles, Oxon, £20. The following grants were also paid for works completed: St. Andrew, St. George, Merleworth, £20; Belmont, St. John the Baptist, Surrey, £100; and St. Etheldreda, Essex, £20. Sentences on St. Luke, Jan. 1, 1850.







# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

Effingham House.

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## NATIONAL EFFICIENCY.

Not a few of the utterances of the representative statesmen of the great Dominions have done much to cheer us here at home, who are bearing with them the burdens of the common Empire, and, grateful as we are for their sympathy, more and more of us are praying silently that the contrast between their promptness of action and economy of resources may stir England up presently to insist with no weak voice that their methods may be taken to heart as lessons by those who administer affairs here. Few of us have read the auditor's Report on the Army Appropriation Account, which covers the first eight months of the war, and which was issued last Saturday week, without shame and anger at the revelations it discloses with regard to the financial system adopted by the Army, and of the frightful waste and extravagance between January and September last year. Some of us know that this is simply a piece with the slackness—to call it by no worse name—which characterises our whole national life and which renders really national efficiency a Utopian dream.

We have read with the utmost interest an article by its editor in the last issue of the "Transactions of the Royal Victorian Institute of Architects," of which we reproduce the substance, and we especially call attention to what is said about our own trades. In these—only in a less degree, perhaps, than in the affairs of Government—slackness, and the stupid "conservatism" of those responsible, are as much to blame—perhaps more—as rises in prices and all the other causes which discourage our clients and give rise to alternate extravagantly stimulated "booms" and weary periods of depression. If we are indeed to profit by the stern lessons of the war—if legitimately prosperous times are once again to afford honest and fair remuneration to all classes, we must lay facts to heart and wake up to the stupidity of the recent past, which has opened the door wide to the alien, and given our competitors all the world over the work our own people have lost.

Broadly, national efficiency may be described as the co-ordination of all the wealth-producing forces in a community, so that from the efficient labour and good material the best results may be attained. It is impossible, even if it were desirable, to eliminate Government co-operation, and this co-operation, it may be said, in some cases will amount to control. Germany, for instance, will knock the manhood out of any man, should it have survived the treatment he was subjected to from his cradle, destroy any originality

latent within him, and make his action to be controlled by the superior mind of a director, whose orders must be implicitly obeyed. By this means a nation may be, as we see it has been, subjected to the severest form of State control. But this is not the method to be tolerated in a Democracy either here or in Australia, and necessarily Government control exercised over us must be directed into channels which shall be in accord with the will of the people. The danger to be avoided is that of "spoon-feeding," a danger too real to be ignored. That Government will serve the State best which conducts its own affairs in the most efficient manner. But it is one of the unfortunate conditions of democratic government that the Ministers who from time to time pass through these Departments become obsessed of the idea that they personally are to "run" their Departments, and to direct the officers what they shall do. It is taken for granted that, in addition to directing the policy which is their legitimate function, Ministers possess the ability to direct the business side of the Department. A sad illustration of this practice is, we are told, to be found in the Postal Department of Australia. In fifteen years there have been ten or a dozen men who have been designated "Postmaster-General" passing through the Department. In the Telephone Branch of the service, year by year as the number of telephone subscribers becomes larger, the deficiency of revenue becomes larger also, and the recurrent deficiency is attributed to this cause. A Board of Commissioners armed with sufficient power would soon make the Department a paying concern. This procedure of appointing a board succeeded in the case of the Victorian Railways some years ago, and the wonder is that this method of converting a Department into a paying concern has not been more largely availed of in Australia. Here we are just as badly done by, mainly owing to the ignorance of statesmen of the value of experts and scientists. For instance, Lord Melbourne said of Faraday, "It was a pity so clever a man should spend his time fooling with a magnet." Lord Palmerston, when told that Germany was erecting laboratory after laboratory, commented, with some reason, that Germany was "a country of damned professors."

Some little time back the Australian Prime Minister (Mr. Hughes) called a conference to consider the application of scientific research to the problems of industry. The conference was particularly successful, and a strong committee was appointed to formulate the scheme. Without any delay the recommendations of the committee have been submitted. It

urges that a bold and comprehensive policy should be immediately adopted, and the appointments to an advisory council made without delay. This council should consist of nine members, representing science and the principal primary and secondary industries. To put it in a few words, there should be both research work and teaching in order that many of the articles until recently "made in Germany," amongst others, and many of the industries which have flourished more or less in Australia should be placed on a scientific basis. The problems arising out of the mining of brown coal, prickly pear eradication, indigenous grasses, sheep fly, production of aluminium, and half-a-dozen other subjects, are held to be of pressing moment.

Before there can be any efficiency in the worker there must be efficiency in the processes of manufacture, and, assuming this object has been attained, the question now arises: How can the worker be made efficient? Let us confine our attention to a portion of the secondary industries, which are designated "the building trades." The first striking aspect is the extreme conservatism of both the worker and the methods employed. For instance, if the excavation of a site for a large building be in progress, the probability is that the material is thrown by navvies into a cart, which, when filled, is drawn up a steep ramp by a number of horses. The horses are strained—possibly some of the navvies themselves give a "shove up" as far as the street. When the general excavating is completed, the ramp itself is removed by a particularly laborious method. If the surplus earth had been removed by a steam or electrical crane, the buckets of which were discharged into the carts by merely turning a lever, what a saving would be effected! In course of time the trenches are ready for the concrete. The concrete may be mixed by hand, or, perchance, by a machine. We are dealing with bulk concrete, and consequently the machine should be of large size. Frequently, however, it is too small, and batches of men are waiting in the trenches for the small barrowloads to be delivered. If the machine is fixed on the level of the trench, most of the material has to be hoisted, the concrete might be delivered in part of the machine by gravitation, and the unnecessary handlings being saved. Whilst the building is in progress, the lifting arrangements are often quite inadequate. Perhaps a barrow is the vehicle employed, drawn up by a horse, or, on the larger city buildings, this arrangement is equipped with electric, instead of horse power. Why cannot the bodies of trucks, carts for larger works be detachable from the frames, and the bricks raised to the

requisite height without being unloaded? Or if the bricks must be loaded into barrows on the ground, why cannot a good lift to take up two or three barrow loads at a time be installed? The fact is that in the building trades makeshift methods are usually considered sufficient. If the requirements were of a more permanent nature, probably the apparatus would be replete with the modern appliances used in loading and unloading ships. Without straining the subject or becoming unduly critical, we might continue in this strain until many of our buildings were completed. But the preceding remarks, it may be urged, apply rather to the management than to the workers. Needless to say, that if the worker notices inefficiency in the management there is little inducement for him to exercise personal efficiency. This leads us at once to the conclusion that any improvement upon existing conditions must spring from the top. Master builders, in a general way, have been workmen in their earlier days and have attained their present position by ability and hard work. Some have been students in the technical colleges, and, perchance, one here and there has received part of his education at the University. But most have had to feel their way, and lack both scientific and business efficiency. Would it not be possible for some of them, and for the directors of some of the great corporations that are practically superseding them, to attend classes in order to be put in the way of understanding what efficiency really is?

When we deal with the workman in the building trades, the problems presented are very difficult of solution. Men of various trades, without any attachment as a whole to a certain employer, on account of the largely varying conditions of the labour market, become either migratory by habit, or frequently leave one master to serve another. How can the position of these men be improved and the greatest efficiency attained?

The personal aspect, moreover, is an important factor in the problem, and anything which makes a worker take increased pleasure in his work should be seriously entertained. By carrying out work systematically, the consequent absence of friction induces pleasure. Further, if the workshop is made more attractive than it usually is, this in itself is conducive to efficiency. At the Newport Railway Workshops the well-kept gardens are frequented by the men after the mid-day meal; the men thus obtain pleasure, which makes them better workmen. How stimulating it is from an office window to see in the midst of a view otherwise drab, the lovely foliage of a green tree! Another factor is that the worker should realise that in his work he is rendering social service to mankind, and that his occupation is of use in uplifting the world. The artist, the man of literature, and even the humble architect, realise this perhaps more fully than most men in the learned professions; but it is not realised as it should be by the man who makes rat-traps that his work is of benefit to mankind. The worker in the building trades has always derived pleasure from the satisfaction that his work is usually of a permanent character, with efficiency stamped on its face. Every worker ought to be trained from the beginning in efficient methods.

The young worker, further, should be taught that by becoming more efficient he does not "do his mate out of a job," but that by increasing the output he increases the demand. In Australia much is expected from the Workers' Educational Association and its system of University Tutorial Classes. It is spreading rapidly

in New Zealand, and has made a beginning in South Africa and Canada.

To recapitulate, the secondary industries of the Empire, especially those which have been recaptured from Germany, require the application of scientific methods to the fullest extent, both by research work and the teaching of pure science. In the building trades the men who direct operations should be taught both scientific as well as business methods, and all operatives should be thoroughly trained whilst young (after passing through the secondary schools if possible) in the technical colleges. All architectural and engineering students should receive University training where practicable, to supplement technical college teaching and office experience. All workers should live and work amongst surroundings which impart pleasure, and should realise that by turning out more and efficient work they are rendering both social and industrial service, and at the same time are not "doing a mate out of a job." When all this is done, and not talked about, there will be short shrift for the national administrator who blunders into culpable waste, and for the mere "politician" whose gift of the gab is his sole qualification for the seat he keeps a better man out of in the Legislature.

#### THE ROYAL SOCIETY OF PAINTERS IN WATER COLOURS.

The Summer Exhibition (the 166th of the Society) of the Royal Society of Painters in Water Colours opened on Saturday last, and will remain open till June 17. It is quite up to the average, and among the 194 exhibits will be found many of interest and very few that are commonplace. The President, Mr. Alfred Parsons, R.A., is well up to his usual form with five contributions. "Delphiniums" (4) is a delightful reproduction of the beauty of the well-known flower which will instantly decide any amateur gardener hitherto unaware of its capabilities to include it henceforth in his herbaceous border. "The Green Glade" (90) is charmingly suggestive of the rural peace and freshness of early summer which will, we all hope, banish from our memories this worst of winters all are tired of. "Langland Bay, South Wales" (100) is a happy combination of the beauties of shore and sea which the author knows so well how to bring about. In "A Backwater on the Ouse" (121) we have a rendering of the quieter but none the less engrossing charms of the still reaches of the Midlands; and in "A Garden Pool" (185) the peace of summertime is perfect.

Mr. Harry Watson scores well with his three exhibits, varied in motive, but all successful in execution: "Romantic Shore" (1), "The Roadside, near Easton, Hampshire" (114), and "Promise" (159). Mr. Henry Henshall has four pleasing domestic subjects, "The Soldier's Wife" (5), "My Ain Fireside" (72), "The Poem" (79), and "In the Fire-glow" (144). Of Mr. Albert Goodwin's eight contributions, "Westminster from a House Top" (5) and "The Backs, Cambridge, in October" (21), are attractive.

Two of the best pictures in the exhibition are Mr. D. V. Cameron's "A Lowland Farm" (48) and "Autumn in Strathguy" (70). The latter is especially good. Mr. D. Murray Smith has five exhibits, "Among the Hampshire Hills" (25) and "On the South Downs" (119) appealing to us most effectively. Mr. S. J. Lamorna Birch's "Bickleigh Vale, Devonshire" (116) is, we think, the best he sends. Miss Laura Knight's "Child Bathing" (22) and "On the Sands" (54) are perhaps the most attractive of the six

she shows. "Giudecca" (6), by Mr. J. S. Sargent, R.A., is a good example of his style. Mr. R. W. Allan's Scottish scenes are excellent, especially "Lochnagar" (91). Of the eight sent by Mr. Robert Little, "St. Raphael and Frejus" (189) is our choice. Mr. James Paterson's "A Singer" (141) is the best of his four pictures, and next we should place his "Richmond, Yorks" (85).

Mr. A. S. Hartrick scores well with his "Hurdlemakers" (112), and again with "Comrades" (153). Sir Ernest A. Waterlow is well represented by "In Arundel Park" (20) and "Mediterranean Pines" (191). Mr. Reginald Barrett's architectural subjects are well rendered. "The Central West Doorway, St. Mark's, Venice" (7) is good, and so is his "Tomb near Amara, on the Tigris" (55) and "A Cairene Fountain" (81). Of kindred interest we like his "Sunrise, Amber-Rajputana, India" (152) and his "Street in Bagdad" (192). Mr. C. Napier Hemy is perhaps at his best in "Blue Weather" (130), but all his five sea pieces are, as usual, excellent. So is "Rum—from Skye" (125), Mr. Leslie Thomson's only contribution. Mrs. Allingham sends three: a charming "Berkshire Cottage" (39), "In a Bluebell Wood" (45), and "An Old Sussex Cottage" (67). None should miss Mr. W. Eyre Walker's "A Grey Dawn" (151) or his "Intruders" (163). Mr. Arthur Rackham's "Arcadians" (50) are evidently happy, and his "Hullo, That's Jolly!" will elicit many an echo of his title. Mr. Arthur Hopkins is to the fore with "Rosalind" (8) and "The New Figurehead and the Critics" (107). "Kensington Palace" (139), by Miss Rose Barton, evokes regret that it is her only contribution; it is so well done. Of the flower pieces we like best Miss Alice Macallan Swan's "Anemones" (104) and Mr. Francis James's "Blue Hydrangea from Clovelly" (105).

Of the rest, we can only mention Mr. J. C. Dollman's "Plumpton Church, Sussex" (26), Mr. Henry S. Tuke's "On the Thame" (78), and "The Black Prince's Tomb in Canterbury Cathedral," by Mr. T. M. Rooke (12).

#### LITHOGRAPHS BY FANTIN-LATOUC.

A small but choice selection of lithographs by Ignace Fantin-Latour (1836-1900) is on view at the Twenty-one Gallery, York Buildings, Adelphi, W.C. Of the six-and-twenty exhibits, only one (No. 17, an early proof of the extremely scarce *Bouquet de Roses*) has a subject of the class usually associated with the artist's name; the other works are all draped or nude female studies treated with the exquisite grace, reticence, refinement, and the masterly technique characteristic of his work. In No. 1, "Homage to Berlioz," an angelic figure bearing a wreath of laurel and a palm branch, hovers over a bust of the great musician set on a broken fluted column; a second draped figure is seated in an attitude of resignation before the monument. A *remarque* on the margin consists of a few bars from *Lelio*. This device is repeated with variations in No. 4, and the work is signed "I. Fantin." No. 2, "Le Paradis et la Peri," is a similar tribute to R. Schumann; on either side of a blaze of glory are angels with wreaths, looking inwards and upwards towards the dazzling light. In No. 3, from Rossini's "Semiramide," the queen refuses the crown offered by a kneeling youth. "La Liberté," No. 5, is personified by a woman in diaphanous robes soaring heavenwards and bearing a lighted torch in her left hand; the treatment of the drapery is harmonious in

its lines. A Rembrandtesque effect is produced in No. 7, "Romeo et Juliette"; the scene on the balcony is almost in darkness except for a beam of moonlight which strikes upon the face and breast of the heroine. A souvenir of Bayreuth is No. 9, a subject from the first scene of Wagner's "Rheingold"—three maiden forms are disporting themselves in the ocean, the lines of the figures being lined with a sure hand and with exquisite grace and charm. There are several sheets of figure studies, showing how Fantin thought out his compositions, and some interesting sketches, of which "Eve" (No. 10) is the most beautiful, recalling the work of Ingres, but of infinitely more free treatment. No. 18, "La Romanesca," shows a girl walking away from us along a woodland path, but turning back for an instant so that her well-contoured face is seen in profile. Nos. 20 and 21 are subjects from "Lohengrin"; in the former, Siegfried, with spear and shield on right arm and blowing his crooked horn, strides up the hillside path, turning his back on the trio of sirens whose charms are displayed in the pool beneath, and in the latter the armed knight kneels at the feet of an angel who upholds a lighted lamp. The last of the lithographs (No. 26) shows "Ondine" swimming across the sea. The exhibition will remain open for a month. We are interested to hear from the secretary of the Twenty-one Gallery that Madame Fantin, the widow of the consummate artist some of whose best work is here on view, is still living in Paris.

### HOUSING OF THE WORKING CLASSES.

The report of the Local Government Board for 1914-15 on the Administration of the Housing of the Working Classes Acts and of the Housing and Town Planning Acts has just been issued. As to the progress of schemes for the provision of working-class dwellings, the report states: "The sum-total of the loans sanctioned by us during the year for this purpose under Part III. of the Housing of the Working Classes Act, 1890, was £1,125,176, of which £862,441 was sanctioned to urban authorities and £262,735 to rural authorities, the bulk of this sum being sanctioned in the first half of the year. The total exceeds by £365,736, or nearly 50 per cent., the total sanctioned for the same purpose in the year 1913-14, which was itself far in advance of the amount sanctioned in any previous year, and the sum included in this total in respect of loans to rural authorities exceeds the previous highest record by £69,155, or nearly 36 per cent. Only £460,609, or little more than two-fifths of the total of £1,125,176, was sanctioned in the latter half of the year, and of this sum only a very small proportion has been or will be allowed to be raised during the currency of the war.

"Shortly after the outbreak of the war we issued a circular to local authorities urging them to prepare schemes for the provision of working-class dwellings in anticipation of possible unemployment, and it may here be mentioned that at the end of the year to which this report relates we had before us no less than 66 schemes for the provision of some 4,120 houses by urban authorities and 68 schemes for the provision of some 570 houses by rural authorities. These schemes involve a total estimated expenditure of over £1,150,000, but in nearly every case further action has had to be deferred until circumstances are more favourable. But while the war has, speaking generally, put a stop to activity on the part of local authorities in this direction, there are a few localities where it has had precisely the opposite effect, and where an urgent need for additional housing accommodation has arisen and has had to be met owing to the numerous workers engaged in the production of materials of war."

### THE CHEMISTRY OF PORTLAND CEMENT

By G. A. RANKIN.

Portland cement is now amongst the most valuable of manufactured products, its aggregate value being probably only second to that of iron and steel. Forty years ago its use was limited, and it was manufactured on only a small scale; at the present time its use is so widespread that the annual production in this country alone is about 100,000,000 barrels. The chief use of Portland cement is as a substitute for stone. In some respects concrete is superior to stone as a building material, but under many conditions it is not so durable as the best building stone. There is reason to believe, however, that it may be possible to produce a cement which will yield a concrete of much greater durability than the Portland cement now made does. Indeed, as the demand for Portland cement has increased, and as the requirements of engineers have called for material of better quality, the manufacturers have been able to meet these demands and to improve continuously the quality of their product. Now, it is to be noted that this continuous improvement has been brought about almost entirely by improvements in the mechanical appliances and methods of the industry, and owes very little to new ideas of how to make Portland cement, based on a knowledge of what the constitution of the product really is.

#### CONSTITUTION OF PORTLAND CEMENT.

The following notes present the results of an investigation of the constitution of Portland cement clinker and of the cementing value of the several constituents. These results enable us to indicate the nature and direction of the research work now required to ascertain the composition and best mode of production of the cementing material best adapted to any particular purpose.

Portland cement clinker is the result of chemical combinations of the three oxides—lime, alumina, silica; but besides these three—which are the essential components—two others, namely, magnesia and ferric oxide, occur to some extent in commercial cement. The average of a large number of chemical analyses of American-made Portland cement is, according to Meade,

CaO	62.0 per cent.	Fe <sub>2</sub> O <sub>3</sub>	2.5 per cent.
Al <sub>2</sub> O <sub>3</sub>	7.5 per cent.	MgO	2.5 per cent.
SiO <sub>2</sub>	22.0 per cent.	SO <sub>3</sub>	1.5 per cent.

From this it is evident that more than 90 per cent. of an average Portland cement consists of the three oxides—CaO, Al<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>. One would expect, therefore, that its properties are due mainly to the presence of the above three components, and that the relatively small admixture of the other oxides exerts at most a wholly secondary influence. Indeed, it has been shown that good Portland cement can be made from the three pure oxides, lime, alumina and silica, in the proper proportions.

Now, ordinary chemical methods enable us to ascertain the aggregate proportion of each oxide present, but they yield us no information as to the manner in which these oxides are combined with one another in other words, as to the substances which actually are present in the clinker and are responsible for its characteristic properties. The determination of this question is very important, for this reason—that, until we know what these substances actually are, we cannot hope to improve the method of making Portland cement, or to improve the quality in any desired direction, except by cut and try methods; and it is generally recognised that such empirical methods are much less certain, and take a vastly longer time to reach the goal, than methods based on a real knowledge of the factors in the problem. The determination of this question has been the object of a very large number of investigations; but the experimental basis of most of this work has been altogether insufficient to decide the several questions at issue. There has been, in general, a failure to realise the fact that a system so complicated as this can

be solved only by proceeding systematically, using as a guide the principle known as the phase rule and establishing definite criteria for the recognition of the several substances which occur.

#### CEMENT CLINKER

Cement clinker is a mixture of substances of very similar properties, and is, more or less, exceedingly fine grained, as a consequence of which it is a matter of some difficulty to make quantitative determination of the constituents; but this difficulty can be surmounted by studying separately each of the presumable constituents of the clinker and determining definite values of certain properties which serve to characterise it and to distinguish it from other possible constituents. Accordingly, the first problem is to isolate and determine all the possible compounds of lime, alumina, and silica which we may expect to find in Portland cement clinker, to establish their relations at high temperatures, and to ascertain their optical characteristics which constitute the most convenient and satisfactory criterion of the identity of the several substances.

These characteristic properties of the several solid substances, containing only CaO, Al<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, which are likely to occur in Portland cement have been determined at the Geophysical Laboratory of the Carnegie

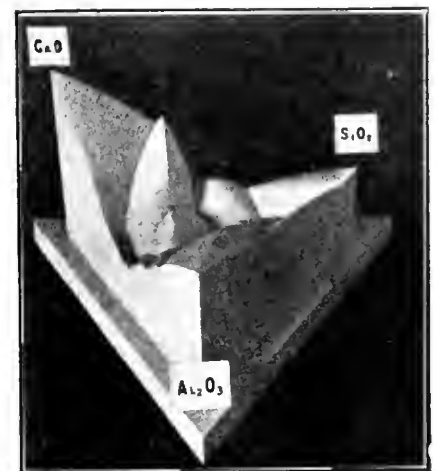


FIG. 1.—A Model of the Concentration Temperatures by the Ternary System

Institution of Washington in the course of a systematic investigation of all compounds formed when any mixture of these oxides is heated to a high temperature. In American-made Portland cements the relative proportions of these oxides vary only between comparatively narrow limits: CaO 60 to 64; Al<sub>2</sub>O<sub>3</sub> 5 to 9; SiO<sub>2</sub> 19 to 25—in other words, in considering this special problem we have to deal with a very restricted portion of the field of the whole system, CaO-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>.

#### THE TERNARY SYSTEM CaO-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>

In order to work out this system completely it proved necessary to investigate about 1,000 different mixtures of these three oxides, and to make about 7,000 heat treatments, and microscopical examinations of the resultant products. Each such mixture, which was always made up of especially pure materials, was alternately fused and ground to a fine powder, the fusions being made in a platinum crucible to avoid contamination, in order to obtain a thoroughly combined product. Each of these products was heated in an electric furnace, the temperature of which was carefully controlled and measured, and all changes in colour when it was quickly cooled, and the resultant material was subjected to a complete optical study. For each product, which was carried out systematically, analyses were determined the crystal phases present at temperatures ranging from that at which melting begins to that at which the change is completely melted; and thus to ascertain the melting temperature and optical properties of all compounds of lime, alumina, silica

which form when any mixture of these three oxides is heated.

#### DATA PLOTTED.

The data thus obtained can be interpreted most readily if they are plotted in three dimensions; the concentration (composition) of each mixture is represented by a point within an equilateral triangle\* on the horizontal plane, the magnitude of the corresponding temperature by the distance above this plane. It would lead us too far to go into details of the construction and properties of such a model; suffice it to say that the series of surfaces thus described represent the melting temperatures of all products obtained when any mixture of the three oxides is heated progressively to higher and higher temperature. A photograph of such a model is reproduced (Fig. 1) on the preceding page. As can be seen, the model resembles a relief map of a mountainous region; each mountain peak is the melting point of a pure component or of a pure compound; the mountain slopes represent the melting temperatures of a component or compound in ternary mixtures; the points where the rivers in the valleys meet to form a lake are the lowest melting temperatures, known as eutectic points. This model, when interpreted with the aid of the principles underlying such equilibria, enables one to specify the order in which the several crystalline substances will form when any mixture composed entirely of lime, alumina and silica is heated, and also to state what are the final products when the reactions have gone to completion.

Let us consider the crystalline substances which will form when a mixture composed only of these three oxides in the proportions such that they will produce a good Portland cement is heated. For this purpose a diagram such as Fig. 2 is useful. This diagram is a projection on the horizontal plane of that portion of the solid model necessary for our present purpose. The corresponding temperatures are here represented by isothermal lines, which are completely analogous to the contour lines on an ordinary map. In this diagram the group of dots represents mixtures of  $\text{CaO}$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{SiO}_2$  from which Portland cement of good quality can be made.

This group of dots, it will be noted, are all included within the triangular area formed by lines connecting the compositions of the three compounds, tricalcium silicate, dicalcium silicate, and tricalcium aluminate. For that reason, if any mixture of  $\text{CaO}$ ,  $\text{Al}_2\text{O}_3$  and  $\text{SiO}_2$ , such as is represented by one of these dots, is heated so that all chemical reactions are completed, the final product obtained will be made up of the above three compounds.

#### CHARACTERISTICS OF CONSTITUENTS.

The constituents of Portland cement clinker made up only of the oxides  $\text{CaO}$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{SiO}_2$  are therefore the three compounds  $3\text{CaO} \cdot \text{SiO}_2$ ,  $2\text{CaO} \cdot \text{SiO}_2$  and  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ . Each of these compounds has optical properties peculiar to itself which serve to distinguish it from the rest. The several characteristic optical and crystalligraphical properties were obtained by a study of each compound itself. These values are constants for the individual compounds in all mixtures made up from pure  $\text{CaO}$ ,  $\text{Al}_2\text{O}_3$  and  $\text{SiO}_2$ ; i.e., the final products resulting when such mixtures are heated are present as individuals of constant optical properties and not as solid solutions.

Microscopical examination of commercial Portland cement clinker shows it to be made up largely (over 90 per cent.) of these three compounds  $2\text{CaO} \cdot \text{SiO}_2$ ,  $3\text{CaO} \cdot \text{SiO}_2$  and  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ . It would appear, therefore, that the value of Portland cement as a cementing material when mixed with water is largely due to one or more of these compounds. Before taking up the cementing value of each of these compounds, however, let us consider their formation when Portland cement is burned.

#### CHEMICAL REACTIONS.

For this purpose let us follow the reactions which take place when a mixture whose composition is  $\text{CaO}$  (as  $\text{CaCO}_3$ ) 68.4 per cent.,

\* In such a diagram the pure components,  $\text{CaO}$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{SiO}_2$  are represented by the apices of the triangle; the binary system,  $\text{CaO} \cdot \text{Al}_2\text{O}_3$ ,  $\text{CaO} \cdot \text{SiO}_2$  and  $\text{Al}_2\text{O}_3 \cdot \text{SiO}_2$ , by the sides of the triangle, and ternary mixtures by points within the triangle.

$\text{Al}_2\text{O}_3$  8.0 per cent.,  $\text{SiO}_2$  23.6 per cent. (point P, Fig. 2), is slowly heated. This mixture, made up only of the pure oxides, lime, alumina, silica, when properly burned, will produce a good Portland cement. When such a mixture is heated, the first change is the evolution of the  $\text{CO}_2$ ; the lime then unites with the other components to form the compounds  $5\text{CaO} \cdot 3\text{Al}_2\text{O}_3$  and  $2\text{CaO} \cdot \text{SiO}_2$  (both of which form readily) probably in the order named, since the former has a lower melting point than the latter; subsequently these two compounds unite in part with more lime and the compounds  $3\text{CaO} \cdot \text{SiO}_2$  and  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$  appear. This formation of the last two com-

to raise the temperature until the charge is completely melted, as normal cement clinker is obtained at temperatures much below complete melting; in other words, the necessary reactions will go to completion below the temperature required for complete melting. The rapidity with which the reactions go to completion is governed by the temperature and by the amount of flux formed at that temperature. The requisite amount of flux in turn depends upon the fineness of the raw materials, since the finer these materials are around the more readily the components will combine. For finely ground raw materials of the above composition, com-

#### COMPOSITIONS AND BURNING TEMPERATURES OF VARIOUS PORTLAND CEMENTS.<sup>1</sup>

##### Percentage Composition of Clinker.

Port-land Cement	Actual Components.	Relative to Content of $\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot \text{SiO}_2$	Burning Temperature Deg. C.	Constituents of Resulting Cements.
Pure (P)	$\text{CaO}$ ..... 68.4 $\text{Al}_2\text{O}_3$ ..... 8.0 $\text{SiO}_2$ ..... 23.6	100.0	1650	$2\text{CaO} \cdot \text{SiO}_2$ $3\text{CaO} \cdot \text{SiO}_2$ $3\text{CaO} \cdot \text{Al}_2\text{O}_3$
White (A)	$\text{CaO}$ ..... 66.2 $\text{Al}_2\text{O}_3$ ..... 6.4 $\text{SiO}_2$ ..... 25.0 $\text{MgO}$ , $\text{Fe}_2\text{O}_3$ , $\text{Na}_2\text{O}$ and $\text{K}_2\text{O}$ ..... 2.4	97.6	1525	$2\text{CaO} \cdot \text{SiO}_2$ $3\text{CaO} \cdot \text{SiO}_2$ $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ } Small amount of $\text{CaO}$ .
Gray (B)	$\text{CaO}$ ..... 63.2 $\text{Al}_2\text{O}_3$ ..... 7.7 $\text{SiO}_2$ ..... 22.4 $\text{MgO}$ , $\text{Fe}_2\text{O}_3$ , $\text{Na}_2\text{O}$ , $\text{K}_2\text{O}$ and $\text{SO}_3$ ..... 6.7	93.3	1425	$2\text{CaO} \cdot \text{SiO}_2$ $3\text{CaO} \cdot \text{SiO}_2$ $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ } Small amounts of $5\text{CaO} \cdot 3\text{Al}_2\text{O}_3$ , $\text{CaO}$ and ferrites.

<sup>1</sup> The data given in this table are based largely on the work of this laboratory. The analysis of commercial clinkers are from publications from the Bureau of Standards and from "Portland Cement," by R. K. Mead. The temperatures of burning and the constituents given are based both on our work and that of the Bureau of Standards.

pounds—a process which goes on very slowly in mixtures of their own composition—is materially facilitated by the circumstance that in the ternary mixtures a portion of the charge has already melted and promotes reaction by acting as a flux or solvent. The temperature at which this flux first appears is  $1335^\circ \text{C}$ ., the eutectic temperature for the three compounds  $2\text{CaO} \cdot \text{SiO}_2$ ,  $5\text{CaO} \cdot 3\text{Al}_2\text{O}_3$ ,  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ . As the temperature of burning gradually rises above  $1335^\circ$ , the relative amount of flux increases and the rate of formation of  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$  and  $3\text{CaO} \cdot \text{SiO}_2$  increases correspondingly. At a temperature somewhat above  $1335^\circ$  the compound  $5\text{CaO} \cdot 3\text{Al}_2\text{O}_3$  will have completely melted in the flux and the formation of

posed only of  $\text{CaO}$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{SiO}_2$ , a temperature of about  $1,650$  degs. C. is required for burning. At this temperature the clinker would be about 30 per cent. melted and 70 per cent. solid crystalline material, a proportion of flux which would admit of the necessary reactions going to completion in a reasonable time. The charge will always completely crystallize on cooling; the percentage composition (based on actual data) of the clinker thus obtained would be approximately  $3\text{CaO} \cdot \text{SiO}_2$ , 45 per cent.;  $2\text{CaO} \cdot \text{SiO}_2$ , 35 per cent.; and  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ , 20 per cent. The melting temperature of the flux necessary for the production of the clinker is materially lowered by the pressure of small amounts of impurities; that the small amounts of  $\text{Fe}_2\text{O}_3$ ,  $\text{MgO}$ , etc., in commercial cement actually have this effect is shown by the fact that the temperature required for burning is about  $1,425$  degrees C.

In the foregoing discussion, we have followed to completion the course of the reactions which take place when cement clinker composed of pure  $\text{CaO}$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{SiO}_2$ , is burned; in other words, we have shown the formation of the compounds during the burning of mixtures of these three oxides in the proper proportions for cement clinker, and stated what compounds will be present in the final product if the burning is continued long enough and at a sufficiently high temperature.

This description of the essential reactions which take place when cement made up only of  $\text{CaO}$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{SiO}_2$  is burned, applies equally well to commercial Portland cement. In commercial cements, however, there is always present small amounts of  $\text{Fe}_2\text{O}_3$ ,  $\text{MgO}$ , alkalis, etc. These minor components, which total less than 10 per cent., have but little effect on the major constituents of the clinker. During the burning of cement clinker, however, these minor components play an important part, since their presence ensures the formation of a flux at a much lower temperature, and thereby materially promotes the combination of  $\text{CaO}$  with  $\text{Al}_2\text{O}_3$  and  $\text{SiO}_2$ .

#### BURNING TEMPERATURES.

In order to afford a comparison of the chemical compositions, the temperature re-

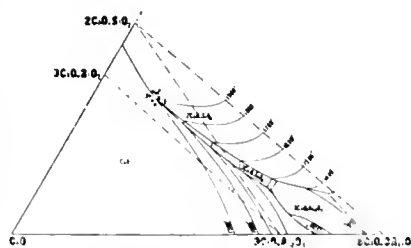


Fig. 2.—Projection of a Portion of Concentration-Temperatures of Ternary System  $\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot \text{SiO}_2$  with Isothermals. (The dots represent the mixtures of  $\text{CaO}$ ,  $\text{Al}_2\text{O}_3$  and  $\text{SiO}_2$ , from which Portland cement of good quality can be made.)

$3\text{CaO} \cdot \text{Al}_2\text{O}_3$  is complete. The substances present as crystals at this stage are  $3\text{CaO} \cdot \text{SiO}_2$ ,  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ ,  $2\text{CaO} \cdot \text{SiO}_2$ , and free  $\text{CaO}$ . Of these the  $3\text{CaO} \cdot \text{SiO}_2$  is rapidly increasing in amount, due to combination of  $2\text{CaO} \cdot \text{SiO}_2$  with  $\text{CaO}$ , while the amounts of solid  $2\text{CaO} \cdot \text{SiO}_2$ ,  $\text{CaO}$  and  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$  are all decreasing, the  $2\text{CaO} \cdot \text{SiO}_2$  partially by combination with  $\text{CaO}$  and partially by dissolving along with  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$  in the flux. As the temperature is raised still further, the amount of flux (liquid) increases and the rate of combination of  $\text{CaO}$  with  $2\text{CaO} \cdot \text{SiO}_2$  to form  $3\text{CaO} \cdot \text{SiO}_2$  increases. But it is not necessary



quired for burning and the final products obtained for different types of Portland cement, the necessary data have been collated in Table I. The examples given in this table are based on the average for a large number of analyses of each of three types of Portland cement, viz., pure cement, made only of  $\text{CaO}$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{SiO}_2$ ; commercial white cement; and the more common grey variety of Portland cement.

If the raw material for pure cement is perfectly burned at a temperature of 1,650 degrees, the clinker obtained will consist of the three compounds—orthosilicate of lime, tricalcic silicate, and tricalcic aluminate. The example of a pure cement, given in Table I., has the chemical composition 68.4 per cent. lime, 8.0 per cent. alumina, 23.6 per cent. silica. The raw material for white commercial cement, when burned at a temperature of 1,525 degrees, will produce a clinker which consists largely of the same three compounds found in pure clinker, except for a small amount of free lime. The average chemical composition of this type of cement as given in the table is 66.2 per cent. lime, 6.4 per cent. alumina, 25 per cent. silica, and 2.4 per cent. magnesia, iron oxide and alkali. The clinker obtained on burning the raw material for commercial grey cement at 1,425 degrees will consist largely of the same three compounds found in the other two types of clinker, except for small amounts of free lime, the compound  $5\text{CaO} \cdot 3\text{Al}_2\text{O}_3$ , and iron oxide as ferrites. The composition of this clinker is 63.2 per cent. lime, 7.7 per cent. alumina, 22.4 per cent. silica, 6.7 per cent.  $\text{MgO}$ ,  $\text{Fe}_2\text{O}_3$ , alkali and  $\text{SO}_3$ .

#### COLOUR POSSIBILITIES OF CONCRETE.

One of the strongest objections by architects to the employment of concrete for the external finish of enclosing walls, is, the *Stone Trades Journal* remarks, the unpleasant tint of the material as ordinarily prepared. A good deal of attention has been devoted to the surface treatment of concrete. White Portland cement has been used in many cases, but its cost is rather prohibitive for average work.

Colouring matter, mixed with the sand before the addition of cement and water, is employed by various firms engaged in the production of concrete stone. The most satisfactory way, however, of obtaining a pleasing colour and texture in concrete surfaces is to select aggregates of appropriate tint, and to clean away the cement so as to expose the stone. A surface so produced will not deteriorate and is exempt from the disadvantages attaching to rendered and to artificial coloured surfaces. The film of cement coating the aggregate can be removed by brushing while still green, afterwards treating the work with a weak solution of hydrochloric acid, and washing away all traces of acid.

Concrete surfaces may also be tooled in the same way as natural stone, the best results being obtained by mixing the concrete to be so worked with aggregate of small gauge. The material must be thoroughly hard before tooling, otherwise sharp edges and surfaces of fine texture cannot be obtained. By the judicious combination of tooled surfaces and details with surfaces obtained by the exposure of coloured aggregates, the architect will be able to secure results of very pleasing character, and which possess the merit of exhibiting the materials actually employed throughout the construction.

At the annual meeting of the Royal Exchange, Manchester, Sir Arthur Haworth, the chairman, reported that satisfactory progress is being made with the extension. The new section of the building up to the old Bank Street is constructed to the Exchange floor level and the outer walls to the level of the arches in the mezzanine windows. The reconstruction of floors on the Market Street side is now practically complete; the offices are being prepared for occupancy, and it is hoped to have the tenants installed in a few weeks' time. We illustrated the amended design by the architects, Messrs. Bradshaw, Gass, and Hope, in our issue of January 15, 1915.

#### OBITUARY.

Mr. Robert Cochrane, LL.D., F.S.D., F.S.A., F.R.I.B.A., F.R.I.A.L., H.M. Inspector of Ancient Monuments in Ireland, and one of the leading authorities on the architecture and archaeology of Ireland, has died at his residence in Rathgar at the age of three score and ten. For twelve years, from 1862 to 1874, Mr. Cochrane, who was educated at Queen's College, Belfast, was Assistant Surveyor for County Down, and was then appointed Assistant Surveyor to H.M. Board of Works, subsequently becoming the principal Surveyor, a post from which he retired seven years ago. He planned extensive additions to Belfast University, including the Hamilton Tower and the Students Union, and was responsible for the reconstruction of the General Post Offices at Dublin and Belfast and in many provincial towns. He was a cautious and painstaking writer on subjects of Irish antiquities. Amongst his principal publications were:—"The Antiquities of the Western Islands of Scotland," "The Ecclesiastical Antiquities of Howth," "The Ancient Monuments of the County of Cork," and numerous contributions to the *Journal of the Royal Society of Antiquaries, Ireland*; *Archæologia Cambrensis*, and other archaeological, architectural, and scientific publications. For eight years he was hon. secretary to the Royal Society of Antiquaries of Ireland, and president for the three years 1909-12. He had also occupied the presidential chair of the Institution of Civil Engineers of Ireland for two years.

Mr. F. W. Lacey, the borough engineer of Bournemouth, died in that town on Friday after a short illness. He had held the post for over a quarter of a century, and prepared designs for and superintended the erection of the Municipal College, the Law Courts, the Undercliffe Drive, and the Marine Parades and cliff walks. In conjunction with the late Mr. Charles E. Malloys, F.R.I.B.A., he carried out the new Municipal Buildings. He was responsible for the tramways throughout the borough, and one of his last great schemes was a design for the proposed new Pavilion.

Mr. William Bennett Rogers, J.P., past-president of the Auctioneers' and Estate Agents' Institute of the United Kingdom, died at his residence, Panchurst, Westgate-on-Sea, on Saturday, in his seventy-sixth year. He served as president of the Estate Agents' Institute before its incorporation with the Auctioneers' Institute. Mr. Rogers founded the firm of Rogers, Chapman, and Thomas more than half a century ago. He conducted many notable auctions of London properties and of furniture and works of art, and he often acted in compensation and rating cases. He was also agent for South Kensington and other estates.

Mr. Joseph Randall, late of the firm of Kirk and Randall, builders and contractors, Woolwich, died on Thursday last at Summer Court, Shooters Hill, Kent, in his seventy-seventh year. The funeral took place at Charlton Cemetery at noon yesterday (Tuesday).

Second Lieutenant P. R. Gibbs, 14th Battalion Worcestershire Regiment (Severn Valley Pioneers), now training on Salisbury Plain, has died suddenly in camp. He was formerly one of the road surveyors of the Worcestershire County Council, and lived at Ingleside, Bromsgrove. Mr. Gibbs secured his commission in this unit, in which his professional skill in road construction would have been most useful, about three months ago, and he joined the battalion about a month ago after a course at an officers' training school. The other day he took breakfast in the mess, but afterwards suffered from internal pains, and was absent from parades. He did not wish to see the medical officer, and was not regarded as seriously ill, but he became worse, and within four and twenty hours he passed away.

News has been received at Hereford that Lieut. C. V. Townsend, the city gas manager, who joined the 7th Batt., King's Shropshire L.I., on the outbreak of war, has been killed in France. He was on patrol duty in "No. Man's Land" when he was shot, and died

immediately. He was brought back to town in a stretcher. He was twenty-eight years of age. He first joined the Grenadier Guards as a private, and was appointed a second lieutenant in the King's Shropshire in June last year. He was formerly at Wakefield. His post as gas manager at Hereford was being kept open for him.

#### THE NEW USES FOR 16, TUFTON STREET.

The Royal Architectural Museum premises at 16, Tufton Street, Westminster, for many years past the headquarters of the Architectural Association, have, under the stress of war conditions, been sold to the Carnegie Trust for the National Library for the Blind, and on Friday the gift was presented to Princess Louise (Duchess of Argyll), as president of the library, by Lord Shaw of Dunfermline, acting on behalf of the trust. The new building provides ample space for the books and a reading room to which the blind may come and read in warmth and comfort. It will probably be opened on April 26.

Lord Shaw stated that the Carnegie Trust first gave thirty copies of twenty-eight works of history, poetry, and fiction to the library at a cost of £2,000. The trust paid £9,000 for the building; cleared off the ground rent, which was reduced by the Ecclesiastical Commissioners from £240 to £130 for the purpose of commutation, and were also spending £1,500 on fitting up the premises. Every penny given to the library will be used to help the cause of the blind, as the building has been launched free from embarrassment.

Princess Louise accepted the munificent gift on behalf of the National Library, and said she felt sure it would be highly appreciated by the blind. The library was founded in 1882 by a blind woman, Miss Arnold, with the help of a grant of £25 from Gardner's Trust for the Blind. A small room was rented at Hampstead, where Miss Arnold lent out the few books the library then consisted of at one penny a week. Without endowment, and supported only by small subscriptions, the library gradually grew to 23,000 volumes of general literature in Braille and Moon types, and 3,500 volumes of music. It has 6,600 readers and an annual circulation of nearly 50,000 volumes.

Mr. H. E. Thomas has presented a picture by the Italian artist, P. C. Gilardi, entitled "Les Dernieres Joies," to the Woolwich Borough Council as a nucleus of a picture gallery to be established in the Town Hall.

Two stained-glass windows, representing "The Earthly Conflict" and "The Heavenly Reward," have been erected in the west end of the parish church of Penley, Salop, as memorials of Lieut. Vaughton Dymock, who was killed in Flanders in October last.

The Chancellor of the Exchequer has reconsidered his decision regarding the housing schemes projected by the corporation of Dublin, and the grants which were refused some time ago for two of the largest projects, viz., the McCaffrey estate and the Fairbrothers Fields schemes—will now be provided.

The Art Galleries and Museums Subcommittee of Glasgow Parks Committee, in their annual report, say that 1915 will be memorable for the tragic events which occurred within the year, their newly-appointed superintendent, Mr. Ramsay, being killed while at the Dardanelles with his regiment, and Mr. Lagton, curator of Glasgow Green Branch, being knocked down and fatally injured by a tramcar. Not many additions have been made to the collections, but a great deal of overhauling, cleaning, and rearrangement has been carried out.

Mr. E. A. Reeves, F.R.G.S., in opening the first of a course of three Evening Lectures on "Surveying, Past and Present," before the Royal Society of Arts on Monday, said it was impossible to say when surveying commenced, but there was in existence a well-preserved Egyptian tomb plan dating back fully 3,000 years, and also a map, probably produced about 1370 B.C., showing the situation of a local gold mine in Africa. He mentioned that marching by the stars was now receiving increased attention, and during the present war had proved invaluable to those who had studied the subject beforehand.







*The National Library of Wales, Aberystwyth*

No. 19

*Detail of One of the Six Ordinary Bays of the North Elevation of the Library Hall*

For Details of this Bay on South Section see Drawing No 20

$\frac{1}{8}$ " Full Size Detail of Cornice

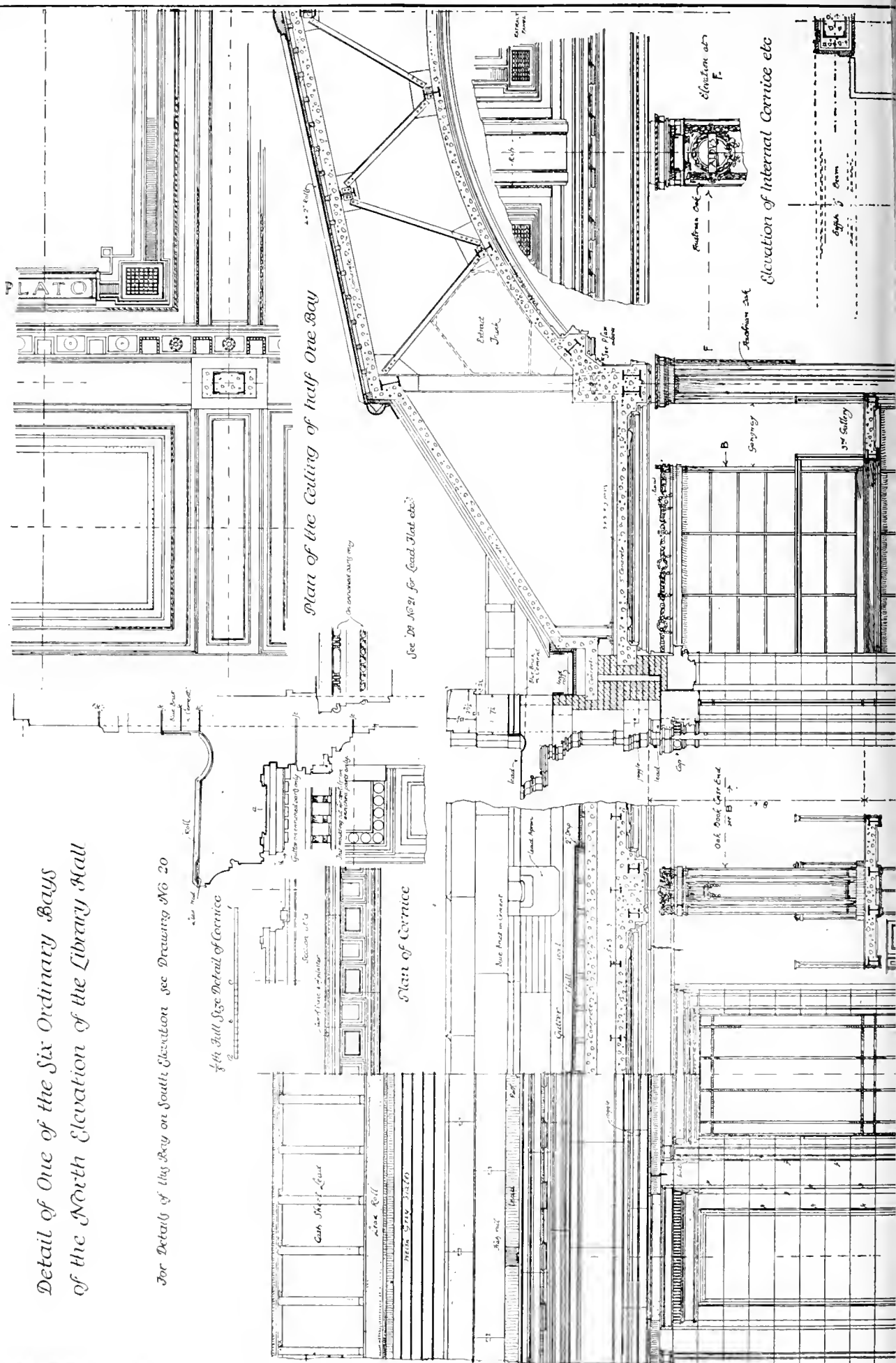
*Plan of the Ceiling of half One Bay*

Plan of Cornice

See 'D9 N°21 for Lead Flat etc.'

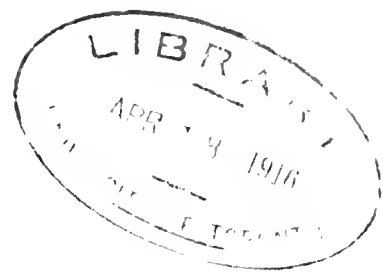
F. elevation at

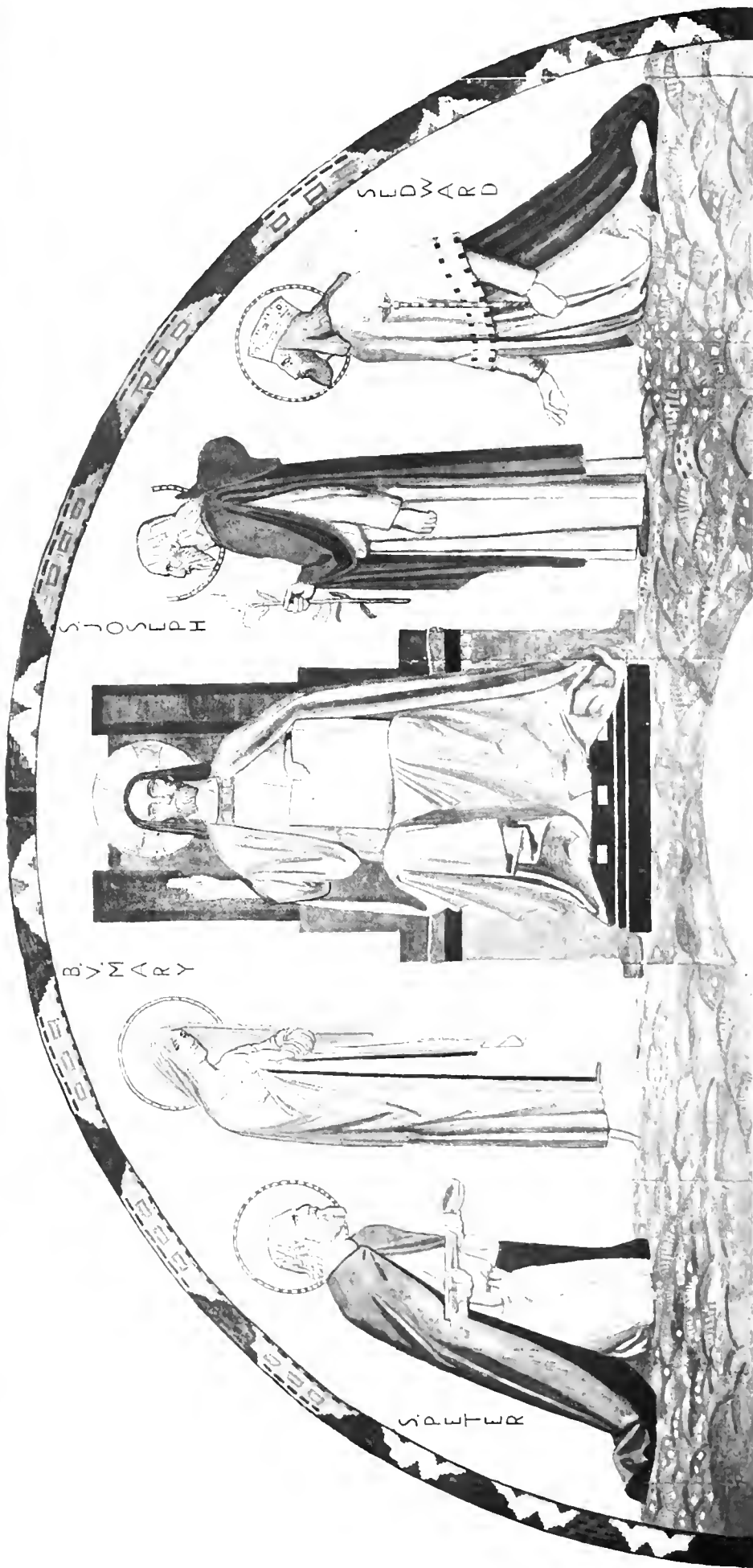
*Elevation of Internal Cornice etc*





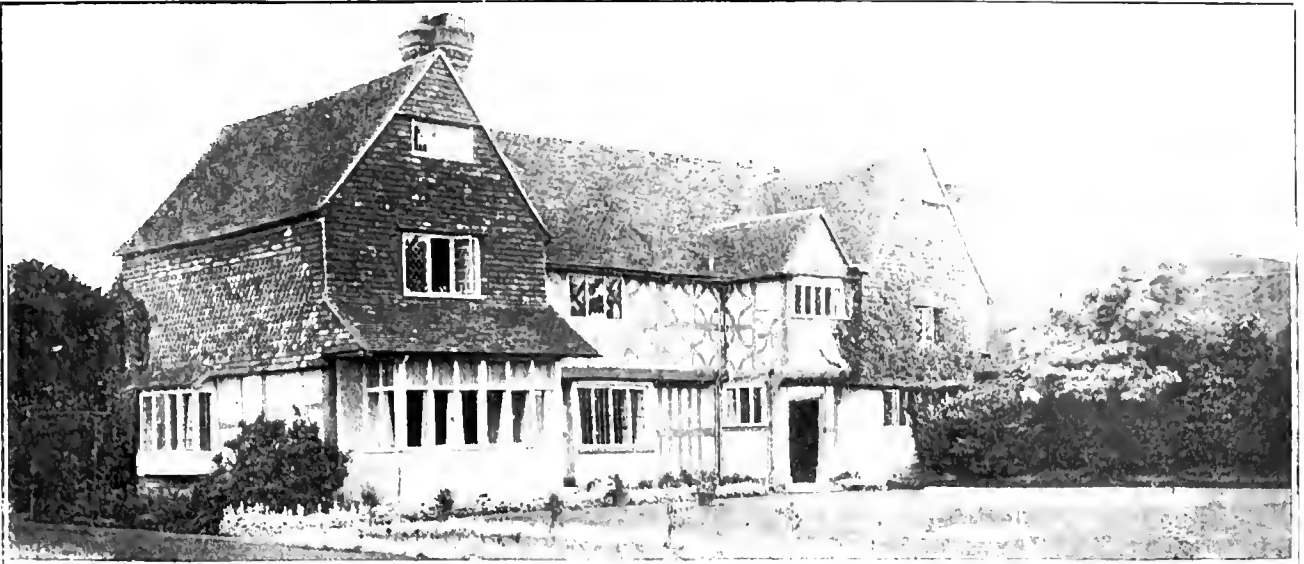






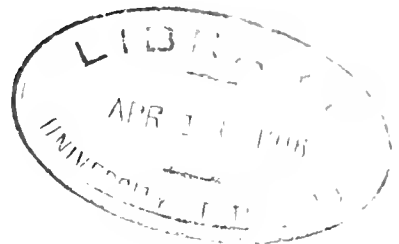
TYMPANUM, WESTMINSTER CATHEDRAL.—Designed by Mr. R. ANNING BELL, A.R.A.



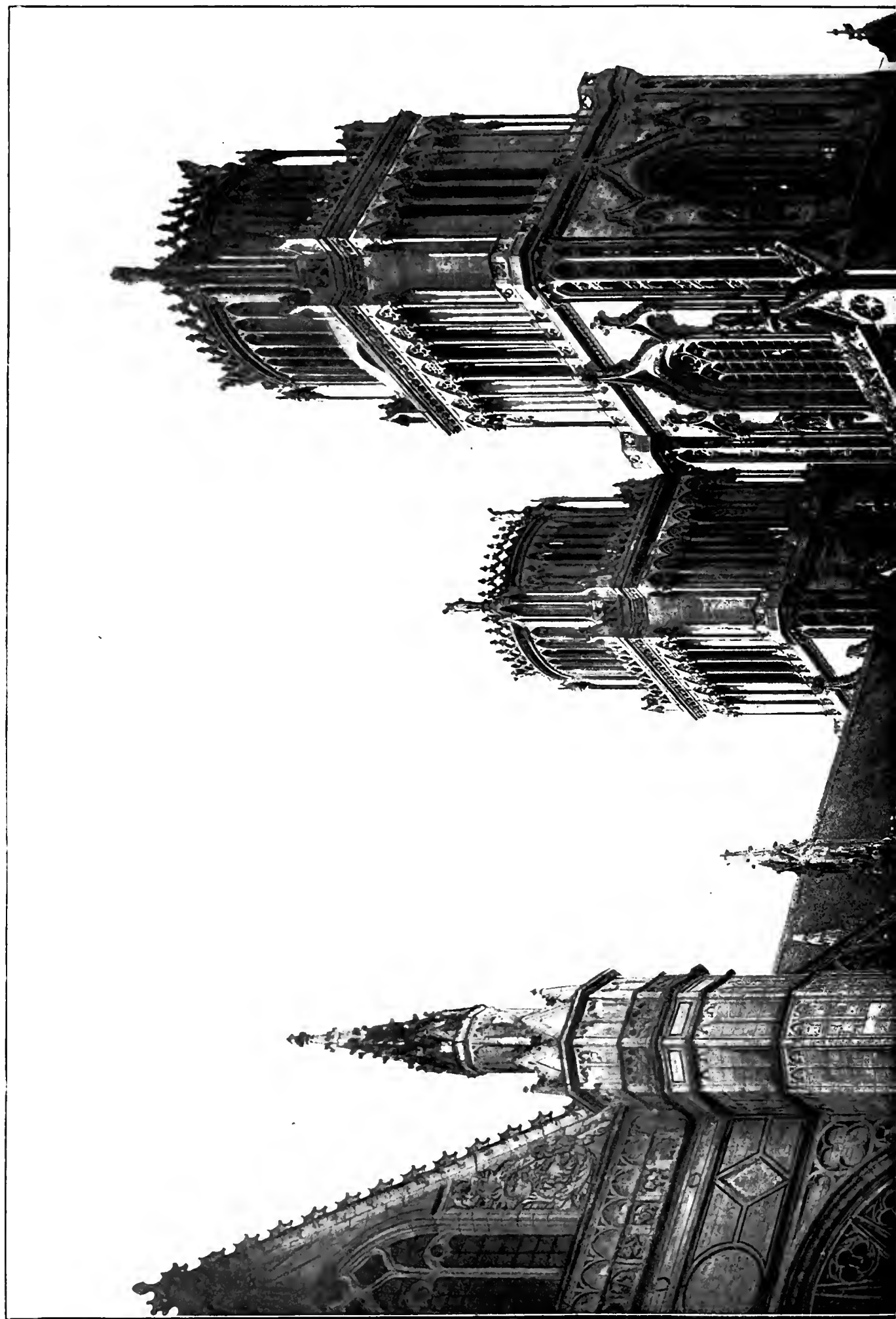


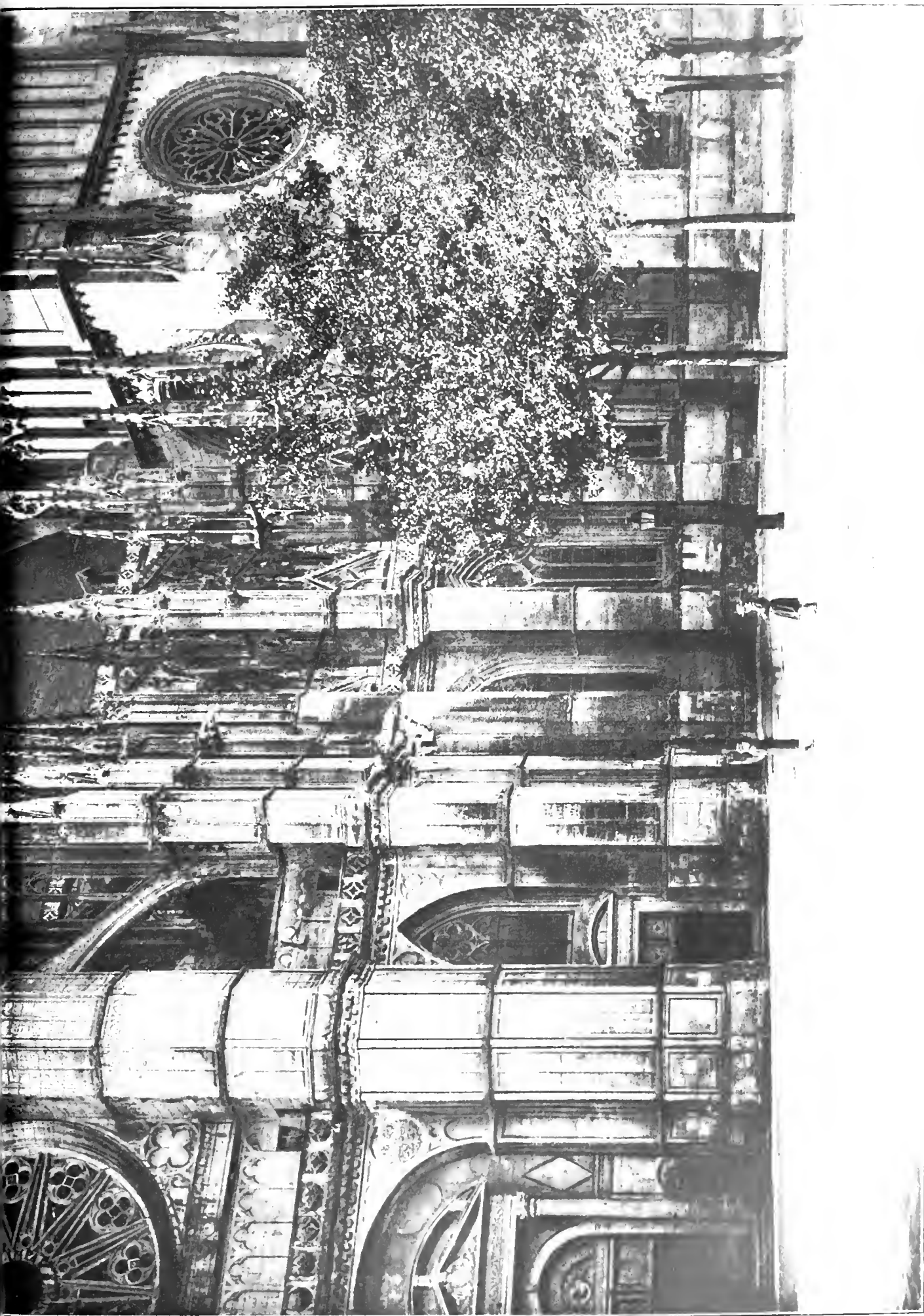
BURNINGFOLD FARM, DUNSFOLD: GENERAL VIEW AND DETAIL OF HALF.





THE BUILDING NEWS, MARCH 29, 1916.





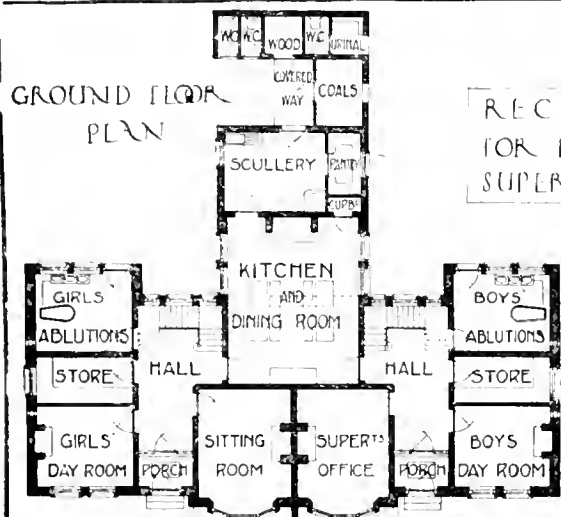
THE TOWERS OF ORLEANS CATHEDRAL FROM THE NORTH-WEST



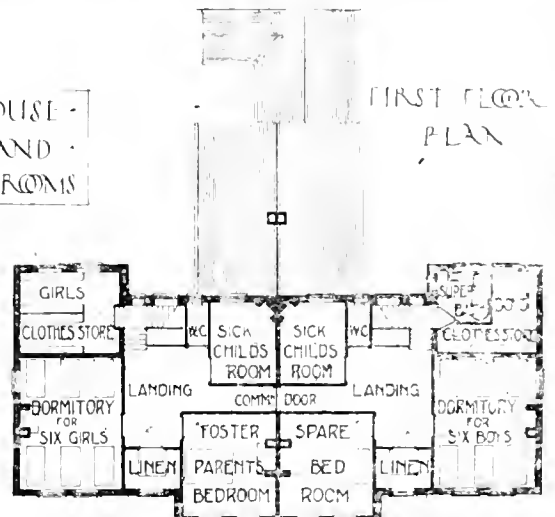




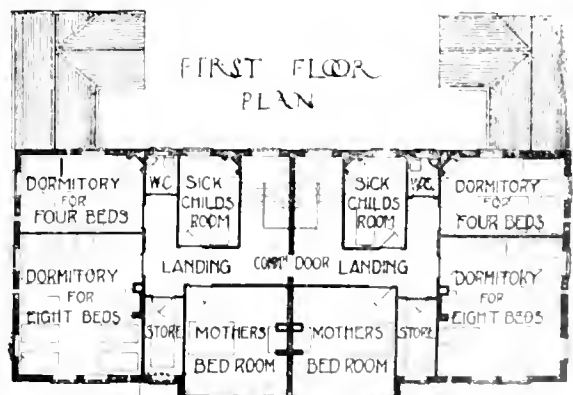
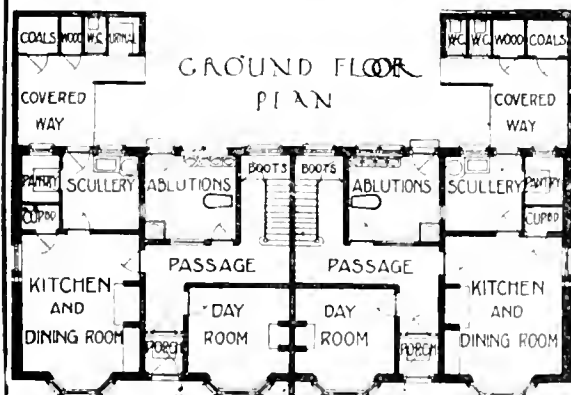
FYLDE UNION : CHILDREN'S HOMES · KIRKHAM



RECEIVING HOUSE FOR 12 CHILDREN AND SUPERINTENDENTS ROOMS



A PAIR OF COTTAGES FOR 24 CHILDREN



FREE L.D.  
ARCHT.  
H. J. B. B. B.

## Corrente Calamo.

Once again the House of Lords, as reported on another page in our Legal Intelligence, has torn to tatters Form IV., that subtilest of nets spread by Mr. Lloyd George and the Commissioners of Inland Revenue about the feet of the victims of financial piracy as unscrupulous as German murder on the high seas. No more drastic rebuke than that with which Lord Atkinson concluded his judgment on Monday can well be imagined. "To shut out the truth and work possible injustice" seems indeed the self-chosen work nowadays of those who govern us. However the Court of Appeal could have reversed Mr. Justice Warrington's judgment in the court of first instance it is indeed difficult to say. Let us be thankful that the highest court in the realm has swept away the reversal and done justice to the harassed taxpayer, and let all likely to be similarly exploited resolve if attacked to fight the matter out to the finish.

The Council of the Surveyors' Institution has set up two strong committees to consider the problems likely to arise at the termination of the war, more particularly in connection with possible unemployment on the disbandment of the Army and munition workers; and dealing with the question in the light of the special knowledge possessed by surveyors, as distinct from other professional men or from the representatives of trade and industry, to suggest preventive or curative schemes. One committee will deal with the subject from the urban standpoint, and the other from that of the rural and agricultural districts; but arrangements have been made by which they will act together, either as a single committee or by means of joint sub-committees, where matters of general principle are involved. We are very glad to know this. Our anxiety with regard to the questions affecting labour after the war is considerable, and the representative bodies of the building trades should fall into line with the Surveyors' Institution at once. A labour war at home, provoked by folly or obstinacy, would be nationally suicidal, especially in our own trades, where work is waiting for all if all are not fools.

The latest "Hints and Suggestions" of the Royal Commission on Paper should be followed by all. Even more might be done. In our own trades, all of us—except Mr. Bug gins, who gets a long discount on them—might well eschew the cheap, trashy wall papers which, in so many of his eligible structures, render the interiors of rooms hideous, and the renewal of the rubbish at an early date certain. Now that at so reasonable price and with economy of labour, washable, lasting enamels and distempers can be had, they might well be used to a still greater extent, affording as they do a much more suitable background for pictures and other decorations than the crudely coloured horrors of the cheap-paper pattern-books, mostly badly hung, and affording lodgment for dirt and vermin and infectious matter, often reeking with the effluvia of rotten paste and repeated layers of paper which it is seldom attempted to remove.

Still further economy would follow if the public would steadily refuse to purchase the garbage of the streets which has degraded the wholesome taste for healthy light literature into a diseased appetite for the abnormal and the bizarre. Some of this has already been

cleared away by dear paper, but there is a good deal of it about, as well as the other sort which lives on libel and masks its own complicity with all sorts of swindles by a fervid zeal for the protection of the public from kindred humbugs and blackmailers. How some of these sheets have fleeced the public with sham competitions and other dodges for extracting the sixpences and shillings from the pockets of their dupes, not a few know, but the majority of their buyers do not, and it is time the law was made more stringent, even with regard to some which it is claimed are honestly conducted.

Even in genuine journalism dear paper will not be without its compensations. Excessive and often unfair competition has driven newspapers to extend their size altogether beyond the requirements of their readers; and to meet the cost of this, and of lavish distribution to force sales, the added pages have been filled with "features" quite outside the scope of a newspaper, simply to drag in extra advertisements. The trade journals have also been multiplied altogether in excess of genuine demand, and simply kept going by pestering advertisers to double and treble their expenditure by the glib canvasser. Many of these will vanish, and readers and advertisers accustomed to rely on the really representative organs of their interests will be thankful, fully aware that all really paying publicity is secured by such. Learned—and other—societies again, which have expanded their "Proceedings" and "Transactions" into "Journals," with the same amiable desire to make advertisers pay for the publication of stuff that would otherwise seldom find readers, will find the already considerable loss resulting increase, and their members will not unreasonably ask why. There will be less waste paper on the market it is true, but what there is will be once more saleable!

The Lord Mayor of York (Alderman Forster Todd), in a letter to the Prime Minister, has called his attention to the work of the Committee on War Damage, and explaining that as soon as the Committee are in a position to prove beyond fear of contradiction that they have the support of the country, they will ask him to receive a deputation for the presentation of a Memorial which will contain the following paragraph:—

Although the Government scheme only came into force on July 19 last, immense losses and great hardships have been suffered in many districts, and it seems to your Memorialists exceedingly unfair that these should not be borne by the nation; and, notwithstanding the fact that the withdrawal of the scheme would now involve a considerable expense in the first instance, it is yet, for the reasons stated above, highly desirable that the Government should retrace their steps in the matter, repay the premiums already received, and, as trustees for the nation, proclaim their intention of giving fair compensation to the owners of property and goods that have already been, or may in future be, damaged or destroyed either by aircraft or bombardment. This, in the opinion of your Memorialists, is the manifest duty of the Government, and one which they are bound by every consideration of justice, expediency and public policy, to recognise and carry into effect.

The Committee already represent 202 Municipal Corporations, including the following large towns:—Belfast, Brighton, Croydon, Gateshead, Middlesbrough, Methyr Tydfil, Paisley, Portsmouth, Rochdale, Southend-on-Sea, Tynemouth, Wigan and York. The population of the places represented exceeds 6,200,000. The Committee are arranging for a large representative meeting in London on Thursday, April 13. The honorary secretary of the Committee is Mr. W. H. Southon, 115a, Chancery Lane, London, W.C. The follow-

ing letter was sent to the President of the Board of Trade on the 24th instant:—

Dear Sir,—A statement to the following effect is made in the Press this morning:—A sea mine, possibly one of our own, exploded at high tide on the beach of an East Coast town and damaged private houses and town property to the extent of some £200. It is said the property was insured under the Government scheme for aircraft and bombardment, and that the reply to claims sent in was as follows:—"My Committee are unable to regard the damage as covered by the Government policy." As such an answer could hardly be given without reference first having been made to the Board of Trade, I write to ask whether there is any truth in the statement?—I am, yours faithfully,

MARK H. JUDGE.

P.S.—I hope the explanation may be that in this case the Government feel that the damage caused by the explosion of the mine should be made good out of national funds.

The reply to this letter will be awaited with interest, and, we imagine, with apprehension by all who have insured against damage!

Messrs. W. and A. K. Johnston, Ltd., of Edinburgh and London, are issuing a new series of maps showing the distribution of timber trees and the timber-growing areas of the world. The increasing use of certain classes of timber for paper-pulp—such as the aspen, spruce, and pine of Sweden—and the scarcity brought about by our restricted tonnage, owing to the abnormal demands on our mercantile marine for military transport, have directed public attention to the importance of this subject, which in the past, in this country at least, has been very much neglected, in spite of the fact that we are by far the largest importers of timber in Europe. There are five maps, the first being a map of the world on Mercator's projection, showing the forest areas, the arid zones, and the prairie and grass land, and also the names of the principal timber trees on the districts in which such trees grow. The remaining maps show in greater detail the exact distribution of the more important trees in each section, with the exporting ports for timber, mountains, towns, rivers, and so on, in atlas-like detail.

Many familiar trees in this country are not indigenous, but have become acclimatised. These include the plane, the English elm (as distinguished from the Scots or Wych elm, which is indigenous), the lime, hazel, hornbeam, sycamore, poplars (white, grey, and black), plane, sweet chestnut and horse chestnut, larch, and many others, besides several species of fruit trees. By glancing at these maps the native habitat of timber trees is easily ascertained, and also the areas in which other trees, not common in this country, or practically unknown, flourish naturally in a wild state or under cultivation. If it is desired to ascertain the latitude at which different species grow, in No. 1 Map will be found in the far north black and white spruce, birch and dwarf willow, juniper, and poplar, dwarf tree growth, etc., stretching round the globe from east to west, above and below the Arctic Circle. At lower latitudes the great Canadian and Siberian conifer belts, and lower still the deciduous forests of the Eastern and Western hemispheres—the areas of walnut and cedar, of teak and oak, mahogany and mulberry—and in the far south the evergreen beech. Climatic zones on high mountains (it will be observed) conduce to the same types of growth as are to be found on the corresponding zones on the land's surface. Mr. J. Hudson-Davies, F.R.H.S., is responsible for the arrangement of the maps.

Alterations are being made at the fire-station buildings of the urban district council of Acton. Messrs. Daley and Son, of Acton, are the contractors.

## Our Illustrations.

### THE TOWERS OF ORLEANS CATHEDRAL, FROM THE NORTH-WEST.

The cathedral church of Sainte Croix is a noteworthy example of an edifice in the Flamboyant style, erected in the Seventeenth Century. The previous Thirteenth and Fourteenth Century cathedral, the third built on the site, was utterly destroyed by the Huguenots, with the exception of the chevet of eleven chapels round the choir and their ambulatory, a chapel attached to the north transept and the piers in the nave, which are incorporated in the present church. The reconstruction was begun by Henri Quatre in 1601, and the work, left unfinished at his assassination in 1610, was continued under Louis XIII., XIV. and XV., the choir, with its aisles and chapels, being completed in 1622, the inharmonious Renaissance transepts in 1676, and the nave in 1685. The florid western façade and twin towers, each 225 ft. in height, and rising in three diminishing stages (of which the topmost is circular), above the nave roof level, were built from the designs of J. J. Gabriel, and modified by his successor, Paris. The short nave of six bays has, like the choir, double aisles. The central flèche (not visible in our illustration) was added in 1859-60, from the designs of M. Boeswillwald. Despite its defects of style, its floridness and shallowness of detail, the interior of the cathedral, with its deep choir and apse, its many columns, arcaded triforium, lofty clerestory, and vaulted roof rising to a height of 110 ft., is impressive in its simple dignity of massing.

### THE NATIONAL LIBRARY OF WALES, ABERYSTWYTH.

This detail shows one of the six ordinary bays of the north elevation of the Library hall—its position on the key-plan is numbered four. Other details, view and plan, have appeared in the three preceding numbers, this being the fourth detail-sheet. Mr. Sidney K. Greenslade, A.R.I.B.A., is the architect.

### TYMPANUM, WESTMINSTER CATHEDRAL.

After many months of patient labour, the mosaic tympanum over the main doors of Westminster Cathedral, the work of Mr. R. Anning Bell, A.R.A., has been exposed to view. The great semi-circular space has altogether five figures. The central group represents God the Son—the author of Christianity—attended by the Virgin-Mother and St. Joseph. Christ is seated on a throne, one hand raised in blessing the world, the other holding the book, wherein one reads the text "Ego sum ostium" (John x., 9). On the extreme left of the panel St. Peter is shown as the first bishop of the Christian Church. On the extreme right of the panel is St. Edward the Confessor, the first patron of England; his civic sovereignty is indicated by the crown and sceptre, and in his right hand he holds the ring he gave to St. John the Evangelist, who, in the guise of a poor man, asked alms of the King. The tympanum is 27 ft. across. Messrs. Powell, of Whitefriars, carried out the work. Our illustration is from a photograph of the cartoon.

### BURNINGFOLD FARM, DUNSFOLD, SURREY.

This picturesque old tiled and half-timbered farmhouse is situated at Dunsfold, on the borders of Surrey and Sussex, amidst a charmingly wooded district, within easy distance of Guildford. Our illustration shows the entrance front. The centre portion is effectively half-timbered, the two wings—right and left—tile-hung. There is evidence of recent additions, notably the window on left of view. The interior is partly panelled, with fine old oak beams, stairs, and supports. We regret no plan is available, but the old house contains some good rooms, having a dining-room 19 ft. by 16 ft., a drawing-room 24 ft. by 14 ft., a morning-room 17 ft. by 15 ft., and a tiled hall; whilst on the first floor are five good bedrooms. Adjoining the house are some characteristic old barns, etc., and a charming old garden surrounds it. We are indebted to Messrs. Knight, Frank, and Rutley, of Hanover Square, W., who

kindly lent us the photographs from which our reproductions are made. The property is for sale by private treaty. Failing this, it will, with others of a sundry character—all on the Burningfold Estate, Dunsfold—be offered by auction.

### NEW COTTAGE HOMES AT KIRKHAM (LANCS.).

These homes have recently been erected for the Guardians of the Poor of the Fylde Union on the site of the old workhouse at Kirkham, Lancashire, and consist of three blocks of semi-detached cottages, to accommodate twelve children each, and a receiving house for six boys and six girls, with superintendents' quarters and outside stores. The buildings are of Accrington best red facing brick up to the first floor, and rough-cast with Puddoed cement and red granite chippings above. The roofs are slated with Buttermere green slates, with overhanging eaves and brick gable copings. The interior work is of best quality throughout; the walls are of adamant plaster, with tiled dados; passage and corridor floors of terrazzo; other ground floors of oak blocks, polished. All baths and lavatories are of porcelain enamel, and are fitted up with hot and cold water. There are ample asphalted courts for the children's playgrounds, with a large space in front laid out as ornamental flower gardens. The cost, exclusive of furnishing, was £10,000. The contractors are Messrs. Croft and Sons, of Preston, and the architect Mr. Fred Harrison, of Accrington and Lytham.

### Craghead and Holmside Co-operative Stores, County Durham.

Our illustration shows the above block of buildings. A description of the scheme appeared in our issue of April 25 last. The site at Craghead is very central, situated at the junction of cross-roads from Chester-le-Street to Lanchester, and Holmside to South Moor. Since the particulars appeared in our issue above mentioned the two managers' houses and the butcher's shop have been completed and occupied. The butcher's shop is lined out to a height of 6 ft. 6 in. with white glazed brickwork, the counter and show-board tops being carried out in white marble. Owing to the present crisis, the building scheme has not made very rapid progress, but the site for the remaining shops and concert hall are now being rapidly cleared. Mr. J. G. Burrell, Durham, is the architect.

## LEGAL INTELLIGENCE.

THE HOUSE OF LORDS AND FORM IV.—ATTORNEY-GENERAL V. FORAN AND ANOTHER.—Before Lords Atkinson, Parker of Waddington, Sumner, and Wrenbury. Judgment was given on Monday in this appeal by the Commissioners of Inland Revenue against an order of the Court of Appeal, which reversed a judgment of Mr. Justice Warrington. The principal question raised was whether the Commissioners were entitled, in the circumstances, to insist that, by virtue of Sub-section (2) of Section 23 of the Finance Act, 1910, minerals under certain lands of the respondents were to be treated as having no value as minerals on April 30, 1909, the effect of which was that when they were subsequently sold the whole of the purchase money became liable to pay increment value duty, and not merely that proportion of it which represented the increase in value (if any) of the minerals between April 30, 1909, and the date of sale. The respondents, owners of a farm near Dover, had filled up Part 1, but not Part 2, which provided for an estimate of the capital value of unworked minerals.—Lord Atkinson said the attempt of the Inland Revenue Commissioners to shut out the truth and work possible injustice did not, on a mere technicality, justify them in bringing the respondents before that House to oppose an appeal which had no merits in it.—Lord Parker and Lord Sumner gave judgment to the same effect.—Lord Wrenbury agreed in dismissing the appeal, and added: The duty of the Inland Revenue to the public does not include a duty to enforce against a taxpayer a liability under which he would not, in fact, lie if he had not by an error, to which they have, indeed, I think conceded, failed to protect himself by an entry in his return. The point becomes in the present case immaterial. But I must express my regret that the Commissioners should take such a view of their duty. It is a wholly erroneous view.—The appeal was accordingly dismissed, with costs against the Crown.

## Correspondence.

### THE RELATION OF SCULPTURE TO ARCHITECTURE.

To the Editor of THE BUILDING NEWS.

SIR,—The interesting leading article in the last issue of THE BUILDING NEWS reviewing Mr. T. P. Bennett's book on the above-named subject leads me to ask you to let me say a few words on sculpture.

If I remember rightly, Vasari places the fine arts in the following order, viz., "Music, Painting, Sculpture, Architecture, and sometimes Engraving." Personally, I would transpose Painting and Sculpture, and if I had a quarter of a million to spend on the adornment of the interior of a mansion, more of it would be expended on sculpture than on painting. I have in my mind many mansions in which sculpture constitutes a leading feature, and I am looking forward to see what sum Gibson's tinted Venus (an important object in the collection of the late Mr. Barratt, of Hampstead) commands in its approaching sale at Christie's.

Climate has much to do with unprotected exterior sculpture; it cannot be denied that London is not the place for it, and one has only to look at the amusing results of soot, snow, and rain on some of the sculpture on our buildings to arrive at that conclusion, particularly in cases of the "female form divine." The open gallery of the Lanzi, at Florence, is one thing, the more open Square of Trafalgar is another.

I have not yet had the opportunity of seeing Mr. Bennett's book, and it may be that he has touched on the designs of our pedestals for sculptural figures, or groups. A quiet meander round the ornamental enclosures between the Palace Yard and the Abbey—along Whitehall, up to and including Trafalgar Square—must convince any one of the distressing want of proportion of pedestal to figure; the pedestals are nearly all far too high, and far too massive, that under Rodin's recent contribution, in the garden beyond the Victoria Tower, being one of the worst examples. Some few years ago Boehm put up a figure in Waterloo Place, and the pedestal was so high that all one could see of the face of the figure from the pavement was the tip of the nose, and a drawing in *Punch*, showing that, led to Boehm taking the figure away and substituting another at, I believe, his own cost.

Westminster Abbey is a museum of the dreadful liberty of sculptural art, and if some night some supernatural destroyers could divest the real figures of their contiguous "clothings" we should see more of the architecture and less of the cemetery mason.

The public needs educating on the value of sculpture in its dwellings, and I hope that Mr. Bennett's book and your encouraging article will have that result.—I have the honour to be,

Your obedient servant,

Wm. Woodward.

Church Row, Hampstead.

March 23, 1916.

## TRADE NOTES.

Boyle's latest patent "Air-Pump" ventilators have been applied to the Council schools, Resolven, Neath, Glam.

Messrs. Alfred Goslett and Co., Limited, announce a dividend of 8 per cent. on ordinary and participating preference shares, £1,500 to reserve, and £3,810 forward, subject to income and excess profit taxes.

Where ground is waterlogged, pumping is necessary to keep the water away whilst the work is being proceeded with. There is a prevailing idea that it is impossible to construct a building with a dry interior under those conditions. We have been informed that some elevator pits situated in a similar position at Aberdeen have been made water-tight with Puddoed cement concrete, and the architect is very satisfied with the result.

The Milford Docks Company have obtained an order to construct a light railway between Milford and St. Bride's Bay, so as to ensure direct access to the West Penbroke anthracite deposits.

## Building Intelligence.

**QUEBEC.**—Considerable progress has been made in the construction of the Union Railway Station, Quebec, by the contractors, Messrs. W. S. Downing Cook, of Montreal. The exterior of the building is now practically completed; the power house is also completed, the boilers are in position, and the general building is under steam. The exterior is of Chateaufort stone, with Argenteuil granite. The window frames and iron doors are in place, and the exterior iron sashes ready for installation. The gypsum block covering is now on, and the roof has only to be sheathed and covered with copper. In the interior also the work is in a forward condition. In the spring the old station will be removed and broad sidewalks enclosing the plaza and road from St. Paul Street to the Henderson Street entrance, together with lamp standards, started on. The object is to complete portions of the station to enable the railway companies and the public to use them in June. Mr. H. E. Prindle, of Montreal, is the architect.

**WAINSCOTT, NORTH KENT.**—The question of the erection of cottages for Admiralty employees at Waincott was again before the Strood Rural District Council on Thursday. During the Admiralty's delay in the matter the cost of building has enormously increased, and the council had intimated that they were now unwilling to undertake the work unless the Admiralty paid the whole of the cost beyond the original estimate. Messrs. Bridges and Clay, the architects, now wrote that one of the builders who had tendered originally was now prepared to carry out the work at an inclusive profit of 5 per cent. They estimated that the cost per house would at present be £517, and suggested that with a net rental of £12 9s. 6d. per annum, a grant of £75 per house by the Admiralty would provide the council with a profit of 5 per cent. (The Admiralty had offered only £50, and the council had asked for £120.) After discussion, it was decided that the Admiralty be informed that if they would increase their offer of £50 per house to £100, the council would at once proceed to have the houses erected, subject to an answer from them in a month, this to be the final offer.

### WATER SUPPLY AND SANITARY MATTERS.

**A SOUTH LINCOLNSHIRE DRAINAGE SCHEME.**—The Board of Agriculture have decided to make a provisional order setting up a new drainage authority to carry out important improvements to the drainage of the district, and especially to the Rivers Welland and Glen. The scheme includes the improvement of the outfall of the River Welland, the cleansing, dredging, and widening of the channel, and the improvement and maintenance of the banks to Spalding High Bridge; the deepening, widening, or straightening of the channel of the River Glen from Surlfleet reservoir to Kate's Bridge; and various improvements of the Counter Drain and the Vernatt's Drain. The new board will be known as the Welland and Glen Drainage Board, and will be constituted of 19 representatives.

### PROFESSIONAL AND TRADE SOCIETIES.

**ADVANTAGE OF INLAND WATERWAYS.**—At the Gloucestershire Chamber of Agriculture on Saturday, Mr. H. Godwin Chance, President of the Gloucester Chamber of Commerce, addressed the Chamber on "Commerce in Relation to Agriculture." It was a scandal, he said, that the report of the Royal Commission on Inland Waterways should have been pigeon holed ever since 1909. He asked agriculturists to reflect what would have been their position in the present crisis if they had had a systematised and a coordinated network of inland waterways connecting industrial and agricultural centres with the sea. The railways were built for trade purposes, and not for strategic use. Nevertheless, the claims of the military had been well met, but at what cost in delay and congestion to the trader and the general community. That cost could hardly be computed, and it was hardly too much to say that the present high prices

bearing so hardly on the poorer classes would have been sensibly diminished if Parliament, in its wisdom, had paid heed to the recommendations of the Royal Commission on Inland Waterways. Our Continental trade rivals had recognised and profited by cheap water transit; even amid the stress of war the German canal system was being actively pushed forward to enable our enemies to meet the commercial war that must inevitably follow upon any peace.

**ARCHITECTURAL ASSOCIATION OF IRELAND.**—A discussion meeting was held on the 23rd inst., at which members were invited to present any "fads" as to forms of construction in detail, not of the stereotyped or conventional character, but variations which were found to be satisfactory in practice. The members who took part illustrated their views by blackboard sketches, and a most instructive discussion was thus generated. The designs submitted by Dublin architects, in competition in connection with additions to Louth County Hall, will be on view until April 1 at the association rooms.

**ROYAL INSTITUTE OF BRITISH ARCHITECTS.**—A special adjourned business meeting of the Royal Institute of British Architects was held at 9, Conduit Street, W., on Monday night, to confirm the resolution passed a fortnight since applying to the Privy Council for sanction to the suspension of by-laws so as to permit of the postponement of the re-election of council and officers from June 30, 1916, until June 30, 1917. The President, Mr. Ernest Newton, A.R.A., occupied the chair, and there was a full quorum of Fellows present. The necessary confirmatory resolution was unanimously agreed to.

### PARLIAMENTARY NOTES.

**REPAIRING WESTMINSTER HALL.**—The First Commissioner of Works, Mr. Harcourt, in reply to Sir W. Essex, who asked in what state relative to the whole undertaking was the work now in progress in the roof of Westminster Hall, said on Thursday:—The position of the works of preservation is as follows: One truss has been completely reinforced and pieced up with new oak; it has also been treated with preservative. One truss has been half-completed as in the preceding case. Two other trusses have been shored up and the steelwork is in preparation for fixing at an early date. Two other trusses have been partly shored up. The fleche is nearly completed and ready for fixing. A considerable amount of preliminary work has been done, such as the ordering of oak, the selection and ordering of slates; and the two steel stages for shoring up all the trusses are complete. Thirteen trusses in all have to be dealt with. No date can be given for the completion of the work.

**THE STRENGTHENING OF CHARING CROSS RAILWAY BRIDGE.**—The South-Eastern and Chatham Railways Bill was read a second time in the House of Lords on Tuesday in last week. The Earl of Plymouth moved, with reference to the provisions relating to the strengthening of Charing Cross Railway Bridge, that the Committee to whom the Bill was to be referred should be instructed to consider the requirements of the traffic over the river at this point, and the effect that the Bill if passed would have upon them, and to hear evidence from the Royal Institute of British Architects, the London Society, and others on the treatment generally of this important part of London. Viscount Chilton, on behalf of the promoters of the Bill, said they would welcome any assistance which could be given them in beautifying the structure. He pointed out that the present bridge was for railway and foot passenger traffic only, and suggested that to authorise the construction of a bridge for traffic of all kinds would be beyond the scope of the measure. The instruction was agreed to.

On behalf of the Manchester and District Institute of Auctioneers and Estate Agents, Mr. E. E. Levy presented on Thursday a motor ambulance to the British Red Cross Society, East Lancashire Division. The ambulance has been purchased out of the proceeds of the Red Cross Auction Sales, which realised £3,093. £1,539 was contributed to the Star and Garter Permanent Home for Disabled Soldiers, and £750 to the Cheshire Red Cross Society.

## Our Office Table.

The City Corporation will receive a report from the Streets Committee at the meeting to-morrow (Thursday) relative to applications from the French Asphalte Company, the Val de Travers Asphalte Company, the Limmer Asphalte Company, and the Improved Wood Pavement Company for increase of prices in connection with their contracts for the maintenance and repair of asphalte and wood pavements, and from Messrs. J. Mowlem and Co., Limited, in connection with their contracts for masons' and paviors' works and the reparation of sewers. The committee recommend that in all contracts entered into prior to August 1, 1914, an increase of 10 per cent. be granted during the continuance of the war, and for twelve months afterwards, in the prices for the maintenance of asphalte and wood pavements, in respect of accounts due from November 1 last; (2) that in all contracts entered into prior to August 1, 1914, an increase of 15 per cent. be granted during the continuance of the war, and for twelve months afterwards, in the prices for the repair and reinstatement of asphalte and wood pavements, in respect of works executed as and from February 1, 1916; (3) that an increase of 10 per cent. be granted on the prices in the contract with Messrs. J. Mowlem and Co., Limited, for the reparation of sewers in respect of works executed as and from July 1 last, during the continuance of the war and for twelve months afterwards; (4) that an increase of 9½ per cent. be granted on the prices in the contract with Messrs. J. Mowlem and Co., Limited, for masons' and paviors' works in respect of works executed from July 1, 1915, until December 31, 1915, at which date the contract expired.

The opening proceedings of the annual convention of the International Association of Master House Painters and Decorators of the United States and Canada, which was held in Cincinnati last month, were delayed for thirty minutes because no British flag bearing the coat-of-arms of Canada was displayed in the decorative scheme of the hall where the meeting was held. There were two American flags draped above the speakers' stand, and between them was the United States shield, with an insert of the Canadian coat-of-arms. Many Canadians are members of the Association, and those present at the convention refused to consider any business until a British flag bearing the Canadian shield was included in the display. A committee appointed for the purpose succeeded in finding such a flag after spending half an hour in visiting many stores.

The comparative longevity of sleepers made from various woods is the subject of a report just issued by a committee of the American Wood Preservers' Association. Of untreated sleepers, the completed records show a life of from twelve to thirteen years for juniper sleepers. The shortest record is 2½ years for a test on gum sleepers. Among the records for the empty-cell process of creosoting, only one is complete, and this shows an average life of ten years for oak sleepers, but as none of the sleepers were removed by reason of decay, this one record has no particular significance. Of 162 records from 31 different railroads which have made tests of creosoting proper, 15 records are complete. The best service reported is an average life of twenty years for hemlock sleepers, which were removed because of rail-cutting, and not because of decay. Six records of the open-tank creosote treatment—none of which were complete—show a life of 9½ years for pine sleepers, all being still in service. Of 183 records relating to zinc-chloride treatment, 41 were complete. The maximum life shows approximately 10.7 years for red oak and 9 to 11.3 years for Douglas fir. It is to be hoped that the investigations will be continued and the results made known from time to time.

### TRADE MOVEMENTS.

**ILKLEY.** The house-painters returned to work on Wednesday after a brief strike, the masters having conceded the penny an hour advance on the present rate demanded.



## CHIPS.

Plans were submitted at Thursday's sitting of Edinburgh Dean of Guild Court for an extension to a sphagnum moss factory at Easter Road.

Second Lieutenant Roland Cooper, elder son of Mr. H. A. Cooper, architect, of Kettering, has been wounded in the neck by shrapnel in France.

The Local Government Board are being asked by the urban district council of Selby to sanction a housing scheme, for which the surveyor, Mr. R. B. M. Gray, has prepared plans.

Subject to the approval of the Local Government Board, the corporation of Stafford have decided to purchase land, at a cost of £1,000, for the extension of the electricity works.

The partnership hitherto subsisting between G. K. Deakin and E. P. Cameron, architects and surveyors, Devonshire Square, London, under the style of Deakin and Cameron, has been dissolved.

The death is announced of Mr. H. J. Carter, the head of the firm of Messrs. H. J. Carter and Co., builders, Grays. Amongst the public buildings which Mr. Carter erected was the East Ham town-hall.

An exhibition is being held in the Art Gallery of the Central Free Library, Belfast, of the drawings and designs of the late W. H. Lynn, R.I.B.A., architect, and the sculptures by his brother, Samuel Lynn.

The business premises of Messrs. Cory Brothers in Bute Street, Cardiff, are being extended from plans by Mr. G. E. Halliday, F.R.I.B.A., of that city. The contract has been taken by Messrs. John Gibson and Co., of Cardiff.

Lieut. Richard Twelvetyrees has been gazetted to a captaincy dating from February 1 last. Captain Twelvetyrees is attached to the headquarters staff of the British Expeditionary Force in the capacity of Inspecting Officer of the Army Service Corps Mechanical Transport.

Sir George Laurence Gumme, F.R.S.A., late clerk to the London County Council, who died on February 23, aged sixty-two years, has left property of the value of £6,204, the net personalty being £4,492. The testator desired that his body should be cremated, no ceremony of any kind to take place.

The Castle Museum, belonging to the corporation of Norwich, has this week received, as a bequest by Mr. John Shelley, of Plymouth, two water-colour drawings, one an excellent example of James Stark (1794-1859), a noted artist of the Norwich School, and the other a "View Near Beccles in 1333."

The death occurred, on the 16th inst., at Putney, of Mrs. Weaver, widow of the late Mr. William Weaver, M.Inst.C.E., nearly forty years borough engineer of Kensington, and who was President of the Institution of Municipal and County Engineers from 1903-4. Mr. Weaver died three years ago.

When the war is over there will probably be many additions to the great number of memorials on the walls of Rochester Cathedral, and it is now announced that the Dean and Chapter have decided not to allow any more brasses to be erected. This is an outcome of representations made to the Chapter by the cathedral architect, Mr. Temple Moore, F.R.I.B.A.

The Ipswich Corporation are appealing to the Local Government Board to withdraw their decision not to sanction a loan of £5,200 for duplicating the refuse destructor. The cause of that action was that the corporation accepted contracts for the work before applying for sanction to the loan. The town clerk explains that the work was done under pressure of the military authorities and the Local Government Board, the quantity of refuse dealt with having risen from 40 to 70 tons a day.

An appeal by the Middle and Lower Ward Committees of the Lanark County Council and the Corporation of Rutherglen for the purpose of securing power to prepare town-planning schemes in Cambuslang, Burnside, and a part of the parish of Carmunnock, and in an area already lying in the burgh of Rutherglen, has been the subject of an inquiry by Mr. David Ronald, on behalf of the Local Government Board for Scotland, in the Merchants' House, Glasgow. Among the objectors to the schemes was the Corporation of Glasgow. After taking evidence, the commissioner intimated that he would report to the Local Government Board.

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Ellingham House, 1, Arundel Street, Strand, W.C.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

\* Drawings of selected competition designs important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc., we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

Telephone: Gerrard 1291.

Telegrams: "Timeserver, Estrand, London."

## NOTICE.

Bound copies of Vol. CIX. are now ready, and should be ordered early (price 12s. each, by post 12s. 6d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLV., XLIX., L., LII., LIII., LXI., LXII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXVIII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., XCVII., XCVIII., XCIX., C., CI., CII., CIII., CIV., CV., CVI., CVII., and CVIII. may still be obtained at the same price; all the other bound volumes are out of print.

## ADVERTISEMENT CHARGES.

The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of Eight Words, the first line counting as two, the minimum charge being 5s. for four lines.

The charge for Auctions, Land Sales, and Miscellaneous and Trade Advertisements (except Situation Advertisements) is 6d. per line of Eight Words (the first line counting as two), the minimum charge being 4s. 6d. for 30 words. Special terms for series of six insertions or more can be ascertained on application to the Publisher.

RECEIVED.—R. A.—E. H. S. and Bro.—G. S. and Co., Ltd.—D. and Co.—H. H. and Co., Ltd.—B. C. S. H. A. C.—C. B. and Co., Ltd.—G. G. and Co.—W. and Co.—F. E. P. and Co.

D. B.—Yes.

T. S. J.—Thanks, Yes.

R. and J.—Both have been sent in.

TILBORN.—Sorry; we will remind you again when the exhibition opens. 2. No.

URGENT.—PLEASE NOTE.—To prevent disappointment, owing to restricted and later postal deliveries, it is not safe to wait till Tuesday morning to send us advertisements for the current week's issue. Many reach us after 3 p.m., at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order THE BUILDING NEWS regularly of their newsagent or book-stall. With the present shortage of paper and probable still further rise in its price, it is futile to expect a news-agent to saddle himself or us with surplus unsold copies to oblige chance customers, on which, moreover, he or we have to pay heavy and increasing carriage charges.

Private Harold Edgar Church, 15th Royal Welsh Fusiliers, the son of Mr. Harold E. Church, A.R.I.B.A., 11, Seaford Road, Hove, has died in France, of a wound received while aiding a comrade, at the early age of 19.

Mr. A. P. I. Cottrell, M.Inst.C.E., of Westminster, president of the Institute of Sanitary Engineers, has been called in to report upon what improvements may be made to the sewage works of the Leyton Urban District Council.

Bournemouth Town Council last week, on the advice of Mr. F. W. Lacey, borough engineer (since deceased) applied to the Local Government Board for sanction to borrow £5,000 for the purpose of constructing twelve groynes on the foreshore. Mr. Lacey pointed out that there has been a serious denudation of the beach, with a consequent imminent danger to the stability of the seawall and undercliff drive.

## TO ARMS!

THE BATTALION—CENTRAL LONDON VOLUNTEER REGIMENT.

ORDERS FOR THE WEEK ENDING APRIL 1, 1916.

OFFICER FOR THE WEEK—Platoon Commander C. H. C. Bond.

NEXT FOR DUTY—Platoon Commander R. W. Corbett.

SCHOOL OF ARMS—Tuesday, March 28, 6.7 p.m.

LECTURES—Thursday, March 30, Instructional Parade, 7.15 p.m., by Musette's Officer to Platoon Sergeant and Section Commanders.

DRILLS AND PARADES—For details of all drills and parades, see notice board at headquarters.

EASTER CAMP—A camp will be held in billets at Otford from Thursday night to Monday night, April 20 to 24. Detailed orders will be issued. Every member must attend unless excused by the Commanding Officer. Inclusive cost will be about 4s. 7d. per day. Names should be given in not later than Thursday to the company sergeant-major.

ENTRECHING PARADE—Sunday, April 2, at Otford, where the section newly allotted to the battalion will be commenced. Parade at Victoria Station looking office (S.E. and Chatham Railway) at 8.35 a.m. Uniform, haversacks and water-bottles. Middy rations to be carried. Railway vouchers will be provided. Every member should make a special effort to attend.

By Order,

MACLEOD YEARSLAY, Adjutant.

March 23, 1916.

## MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY (To-day).—St. Paul's Eccelesiological Society. "Freaks and Fancies of Cathedral Builders," by F. G. Emier, St. Paul's Chapter House, E.C. 8 p.m.

Northern Architectural Association. Annual Meeting, 4.30 p.m.

Monday.—Royal Society of Arts. "Surveying, Past and Present," Fothergill Lecture No. II., by Edward A. Reeves, 4.30 p.m.

Tuesday (April 4).—Institution of Civil Engineers. Discussion on "Raigoun River Training Works"; paper on "The Present Conditions of Artificial Drainage in Some English Rivers," by Richard Fage Grantham, M.Inst.C.E., 5.30 p.m.

WEDNESDAY (April 5).—Royal Society of Arts. "Painting by Pipping, Spraying, and other Mechanical Means," by Arthur S. Jennings, 4.30 p.m.

Royal Archaeological Institute. "The Monumental Effigy of Bridget Countess of Bedford at Cheneys," by Alfred C. Fryer, Ph.D., F.S.A.; "The Effigy of a Thirteenth Century Abbot of Ramsey. Some Further Examples of English Medieval Alabaster Tables," by Philip Nelson, M.D., F.S.A., Burlington House, W., 4.30 p.m.

Institute of Sanitary Engineers. "Planning for a Town of 50,000 Inhabitants," Fellowship Thesis, by André Le Marchand, Cavton Hall, S.W., 7 p.m.

At Partleet, Essex, a new foundry is being constructed for Messrs. A. Jurgens and Co., of Glasgow. The contractors are Messrs. Jackman and Co., of Slough.

The Manor House at Brackley, Northants, built by the late Earl of Ellesmere at a cost of £130,000, has been acquired by the Woodland Society for a girls' school at a cost of £7,000.

At St. Aldate's Church, Oxford, last week altar rails of oak and an alabaster mural tablet were dedicated as memorials of the late Canon Christopher, rector 1859-1915, and Mrs. Christopher.

The new St. Mary's Parish Church at Harrogate will be dedicated by the Bishop of Ripon on Ascension Day, June 1. The church was planned by Mr. Walter Tapper, F.R.I.B.A., whose design, selected in competition, was illustrated in our issue of October 1, 1913. The memorial chapel is now complete. It is here that a statue of the late Surgeon-General Lofthouse, who left over £20,000 for the erection of the church, will be placed. The stone carving in the memorial chapel has been done entirely by Yorkshire stone carvers.

During 1915 work on the breakwater at Ogden Point, Victoria, B.C., has progressed so rapidly that the structure, which at the beginning of the year, was not visible above the surface of the water, is now two-thirds finished. The breakwater is composed of 100 columns, the first extending only 350 ft. from shore, the remaining 90, having a total length of 1,900 ft., and the outer arm, which will be 1,100 ft. long. On January 1 the work had been completed for a distance of 1,650 ft. from shore. Over 1,000 tons of coarse and fine rubble have been used in the construction of this. Mr. J. S. Macleagan is the Dominion Government engineer for the works.

## LATEST PRICES.

N.B.—All prices must be regarded as merely approximate for the present, as our usual sources of information are in many cases failing us.

## TIMBER.

Owing to stoppage of supplies all prices have advanced considerably.

IRON.	Per ton.	Per ton.
Rolled Steel Joists, English.	£20 5 0 to	£21 5 0
Compound Girders, Ordinary		
Sections	22 0 0	23 0 0
Compound Stanchions	23 0 0	24 10 0
Wrought-Iron Girder Plates	13 10 0	13 12 6
Steel Girder Plates	13 15 0	13 17 6
Steel Sheets (Single or Double)	11 10 0	—
Steel Strip	10 15 0	—
Basic Bars	11 15 0	—
Bar Iron, good Staffs	15 10 0	15 15 0
Do., Lowmoor, Flat, Round, or Square	24 0 0	—
Do., Staffordshire Crown	14 0 0	14 10 0
Boiler Plates, Iron—		
South Staffs	8 0 0	8 15 0
Best Smedshill	9 0 0	9 10 0

Angles, 10s, 20s, 25s, per ton extra.  
Builders' Hoop Iron, for bonding, £13 5s. to £13 15s.  
Ditto galvanised, £20 to £20 10s. per ton.  
Galvanised Corrugated Sheet Iron—

No. 13 to 20.	No. 22 to 24.
6ft. to 8ft. long, inclusive	Per ton.
gauge	£29 0 0
Best ditto	32 0 0

Per ton.	Per ton.
Cast-Iron Columns	£13 10 0 to £14 0 0
Cast-Iron Stanchions	13 10 0
Rolled-Iron Fencing Wire	8 15 0
Rolled-Steel Fencing Wire	7 15 0
Galvanised	6 5 0
Cast-Iron Sash Weights	6 10 0
Cut Floor Brads	15 0 0
Corrugated Iron, 24 gauge	16 0 0
Galvanised Wire Strand, 7 ply, 14 B.W.G.	14 5 0
B.B. Drawn Telegraph Wire, Galvanised—	
0 to 8	9 10 11 12
£10 10s. £10 15s. £11 0s. £11 5s. £11 15s. per ton.	B.W.G.

Cast-Iron Socket Pipes—  
3 in. diameter..... £7 5 0 to £7 12 6  
4 in. to 6 in. .... 7 0 0 " 7 2 6  
7 in. to 24 in. (all sizes) .. 7 7 6 " 7 12 6  
[Coated with composition, 5s. 0d. per ton extra.  
Turned and bored joints, 5s. per ton extra.]

Ton—	Per ton.
Cold Blast, Lillieshall	137s. 6d. to 142s. 6d.
Hot Blast, ditto	100s. 0d. " 107s. 0d.
Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.)—	
Gas-Tubes	582 pc.
Water-Tubes	55 "
Steam-Tubes	51½ "
Galvanised Gas-Tubes	47½ "
Galvanised Water-Tubes	45 "
Galvanised Steam-Tubes	37½ "

## OTHER METALS.

Per ton.	Per ton.
Lead Water Pipe, Town	£42 10 0 to
" Country	43 10 0
Lead Barrel Pipe, Town	43 10 0
" Country	44 10 0
Lead Pipe, tinned inside, Town	44 10 0
" Country	45 10 0
Lead Pipe, tinned inside and outside	47 0 0
" Country	48 0 0
Composition Gas-Pipe, Town	45 10 0
" Country	46 10 0
Lead Soil-pipe (up to 4½ in.) Town	45 10 0
" Country	46 10 0
[Over 4½ in. £1 per ton extra.]	
Lead, Common Branda	25 10 0
Lead, 4lb. sheet, English	31 17 6
Lead Sheet, in 28lb. bags	24 15 0
Copper sheets, sheathing & rods	128 0 0
Copper, British Cakes and Ingot	148 0 0
Tin, English Ingots	190 10 0
Do., Bars	191 10 0
Pig Lead, in lwt. Pigs, Town	33 12 6
Sheet Lead, Town	42 0 0
" Country	43 0 0
Genuine White Lead	50 15 0
Refined Red Lead	54 0 0
Sheet Zinc	130 0 0
Spelter	93 0 0
Old Lead, against account	32 5 0
Tin	11 0 0
Cut nails (per cwt. basis, ordinary brand)	1 3 0

\* For 5 cwt. lots and upwards.

## I BUY

## SCRAP METALS

ARTHUR P. COLLINS, Snow Hill, BIRMINGHAM.

Phone: Central 1020. Telegrams: "Metals, Birmingham."

Bankers: The National Provincial Bank of England, Ltd., Bennett's Hill, Birmingham.

## STATES.

in. in.	£ s. d.	per 1,000 of
Blue Portmadoc	20 x 10 .. 11 2 6	1,200 at r. atn.
" "	16 " 8 " 5 10 0	" "
First quality	16 " 10 " 10 12 6	" "
Blue Bangor	20 " 10 " 11 5 0	" "
" "	20 " 12 " 11 17 6	" "
First quality	20 " 10 " 11 0 0	" "
" "	20 " 12 " 10 12 6	" "
" "	16 " 8 " 5 10 0	" "

Eureka unfading green	in. in.	£ s. d.	per 1,000 of
" "	20 " 10 " 15 17 6	" "	1,200 at r. stn.
" "	20 " 12 " 18 7 6	" "	" "
" "	18 " 10 " 13 5 0	" "	" "
" "	16 " 8 " 10 5 0	" "	" "
Permanent Green	20 " 10 " 11 12 6	" "	" "
" "	18 " 10 " 9 12 6	" "	" "
" "	16 " 8 " 6 12 6	" "	" "

## BRICKS.

(All prices net.)	£ s. d.	per 1,000 alongside, in
First Hard Stocks	£2 0 0	" [river
Second Hard Stocks	1 16 0	" "
Mild Stocks	1 14 0	" "
Picked Stocks for		delivered at
Facings	2 15 0	raily station.
Flettons	1 16 0	" "
Pressed Wire Cuts	1 18 0	" "
Red Wire Cuts	1 14 0	" "
Best Fareham Red	3 12 0	" "
Best Red Pressed		" "
Ruabon Facing	5 0 0	" "
Best Blue Pressed		" "
Staffordshire	3 15 0	" "
Ditto Bullnose	4 0 0	" "
Best Stourbridge Fire-bricks	4 0 0	" "
2½ in. Best Red Ac-corington Plastic Facing Bricks	4 10 6	" { Net, delivered in full truck loads in London.

Per 1,000	£ s. d.
3½" Acorington Best Red Plastic Facing Bricks	£2 10 0
3½" ditto Second Best Plastic ditto	2 2 6
Ditto Ordinary Secondary Bricks	1 11 3
Ditto Plastic Engineering Bricks	1 17 6
Sewer Arch Brick, not more than 3½ in. (thickest part)	2 0 0
3½" Chimney Bricks fit for outside work	2 6 0
3½" ditto ditto through and through	2 0 0
3½" Beaded, Oval, and Bevel Jamb; Octagonal; 2½" and 3" radius Bullnoses; Stock patterns	3 7 6
Acorington Air Bricks, 9" x 2 course deep, each	0 0 6
Ditto ditto 9" x 1 course	0 0 3
Acorington Chamber Arches—	
3 course deep 4½" soffit, per foot opening..	0 1 3
4 " 4½" " " " " " "	0 1 8
5 " 4½" " " " " " "	0 2 1
6 " 4½" " " " " " "	0 2 6
3 " 9" " " " " " "	0 2 1
4 " 9" " " " " " "	0 2 11
5 " 9" " " " " " "	0 3 6
6 " 9" " " " " " "	0 4 6

Net free on rail, or free on boat at works.

## GLAZED BRICKS.

HARD GLAZES (PER 1,000).	£ s. d.
White, Ivory, and Best.	
Salt Glazed. Buff, Cream, Other	
Best. Seconds. & Bronze. Colours.	
Stretchers—	
£12 7 6 £11 7 6 £13 17 6 £17 17 6 £12 17 6	
Heads—	
11 17 6 10 17 6 13 7 6 17 7 6 12 7 6	
Quoins, Bullnose, and 4½ in. Flats—	
15 17 6 14 17 6 17 17 6 21 7 6 16 7 6	
Double Stretchers—	
17 17 6 16 17 6 20 17 6 24 7 6 18 7 6	
Double Heads—	
14 17 6 13 17 6 17 17 6 21 7 6 15 7 6	
One side and two ends, square—	
18 17 6 17 17 6 21 7 6 26 7 6 19 7 6	
Two sides and one end, square—	
19 17 6 18 17 6 22 17 6 26 17 6 20 7 6	
Splays and Squints—	
17 7 6 16 7 6 21 7 6 24 7 6 17 17 6	
Plinth and Hollow Bricks, Stretchers and Heads—	
5d. each 4d. each 6d. each 6d. each 5d. each	
Double Bullnose, Round Ends, Bullnose Steps—	
5d. each 4d. each 6d. each 6d. each 5d. each	
Rounded Internal Angles—	
4d. each 3d. each 5d. each 5d. each 4d. each	

## MOULDED BRICKS.

Stretchers and Heads—	£ s. d.
8d. each 8d. each 8d. each 8d. each 8d. each	
Internal and External Angles—	
1/2 each 1/2 each 1/2 each 1/2 each 1/2 each	
Sill Bullnose, Stretchers, and Heads—	
5d. each 4d. each 6d. each 6d. each 5d. each	
Majolica or Soft Glazed Stretchers and Heads	£22 17 6
Quoins and Bullnose	27 17 6
Compass bricks, circular and arch bricks of single radius £6 per 1,000 over above list for their respective kinds and colours	ing 9 in. by 4½ in. by 2½ in.
Camber arch bricks, any kind or colour, 1a. 2d. each	
Stretchers cut for Closers and Nicked Double Heads, £1 per 1,000 extra.	
These prices are carriage paid in full truck loads to London Stations.	
Thames Sand	7 6 per yard, delivered.
Pit Sand	7 0 " "
Thames Ballast	6 0 " "
Best Portland Cement	36 0 to 41 0 delivered.
Ground Blue Lias Lime	21 0 per ton, delivered.
Exclusive of charge for sacks.	
Grey Stone Lime	13 6 to 14 0 delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at railway station.	

## STONE.\*

Red Mansfield, in blocks	per foot cube	£0 2 4
Darley Dale, ditto	"	0 2 6
Red Corsehill, ditto	"	0 2 6
Closeburn Red Freestone, ditto	"	0 2 2
Ancaster, ditto	"	0 1 11
Greenshill, ditto	"	0 2 0 2
Beer Stone, delivered on rail at Scton Station	"	0 1 1
Ditto, delivered at Nine Elms Station	"	0 1 7 1/2
Chilmark, ditto (in truck at Nine Elms)	"	0 1 10 1/2
Hard York, ditto	"	0 2 0
Do. do. 6 in. sawn both sides, landings, random sizes	per foot sup.	0 2 8

\* All F.O.E. Ldn ton.

Do. do. 3 in. slab sawn two sides, random sizes	per foot cube	£ s. d.
Bath Stone—Delivered in railway trucks at Westbourne Park, Paddington (G.W.R.), or South Lambeth (G.W.R.), delivered in railway trucks at Nine Elms (L. & S.W.R.)	"	0 1 7 1/2
Delivered on road wagons at Nine Elms Depot	"	0 1 8 1/2
Portland Stone—Brown Whitbed in random blocks of 20 ft. average, delivered in railway trucks at Westbourne Park (G.W.R.), South Lambeth (G.W.R.), or Nine Elms (L. & S.W.R.)	"	0 2 5
Delivered on road wagons at Fimlico Wharf or Nine Elms Depot	"	0 2 6 1/2
White Basebed—2d. per foot cube extra.		

## TILES.

Plain red roofing tiles	s. d.	Divrd. at
Hip and Valley tiles	42 0	per 1,000 ry. sq.
Brosely tiles	3 7	per doz.
Ornamental tiles	50 0	per 1,000
Hip and Valley tiles	52 6	"
Ruabon red, brown, or bridled ditto (Edwards)	4 0	per doz.
Ornamental ditto	57 6	per 1,000
Hip tiles	60 0	"
Valley tiles	4 0	per doz.
Selected "Perfecta" roofing tiles: Plain tiles (Peake's)	46 0	per 1,000
Ornamental ditto	48 6	"
Hip tiles	3 10 1/2	per doz.
Valley tiles	3 4 1/2	"
"Rosemary" brand plain tiles	48 0	per 1,000
Ornamental tiles	50 0	"
Hip tiles	4 0	per doz.
Valley tiles	3 8	"
Staffordshire (Hanley) Reds or bridled tiles	42 6	per 1,000
Hand-made sand-faced	45 0	"
Hip tiles	5 6	per doz.
Valley tiles	5 6	"
"Hartshill" brand plain tiles, sand-faced	45 0	per 1,000
Pressed	42 6	"
Ornamental ditto	47 6	"
Hip tiles	4 0	per doz.
Valley tiles	3 6	"

## OILS.

Rapeseed, English pale, per tun	£28 15 0 to	£29 5 0
Ditto, brown	26 15 0	27 5 0
Cottonseed, refined	29 0 0	30 0 0
Olive, Spanish	39 10 0	40 0 0
Seal, pale	21 0 0	21 10 0
Cocoonut, Cochinn.	46 0 0	46 10 0
Ditto, Ceylon	42 10 0	43 0 0
Ditto, Mauritius	42 10 0	43 0 0
Palm, Lagos	32 5 0	33 5 0
Ditto, Nut Kernel	35 0 0	35 10 0
Oleum	17 5 0	19 5 0
Sperm	30 0 0	31 0 0
Lubricating, U.S.	0 7 0	0 8 0
Petroleum, refined	0 0 6 1/2	0 0 6
Tar, Stockholm	1 6 0	1 10 0
Ditto, Archangel	0 19 6	1 0 0
Linseed Oil	0 3 9	—
Baltic Oil	0 4 0	—
Turpentine	0 4 4	—
Putty (Genuine Linseed Oil)	0 12 0	—
Pure Linseed Oil	—	—
"Stority" Brand	0 9 0	—

## GLASS (IN CRATES).

English Sheet Glass 15 oz. 21 oz. 26 oz. 32 oz.	£ s. d.
Fourth	6d. 6d. 7d. 7d.
Third	5d. 5d. 7d. 8d.
Fluted Sheet	6d. 7d. —
Hartley's English Rolled Plate	4d. 4d. 5d. 5d.

## VARNISHES, Etc.

Per gallon.	£ s. d.
Fine Pale Oak Varnish	£0 8 6
Pale Copal Oak	0 10 0
Omnifac Copal Oak	0 10 0
Superfine Pale Elastic Oak	0 12 0
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of churches	0 14 6
Fine Elastic Carriage	0 12 0
Superfine Pale Elastic Carriage	0 16 6
Fine Pale Maple	0 10 0
Finest Pale Durable Copal	0 18 6
Extra Fine French Oil	1 1 9
Egg-shell Flattening Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 9
Oak and Mahogany Stain	0 9 9
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

Plans have been prepared for a Union Railway Station to be built in St. Paul, Minnesota, at an estimated cost of £3,000,000 sterling. Nine railway companies will share the cost of erection.

A museum is to be built adjoining the School Science Block on the Glaphthorn Road, Omdurman. It is the gift of Sir Alfred Yarrow to the memory of his son, Lieut. Yarrow, an old Omdurman schoolboy, who has been killed in France. The work is to commence at once.



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

Effingham House,

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## OUR ILLUSTRATIONS.

New Peabody Buildings at Camberwell Green, S.E.  
Mr. Victor Wilkins, Architect.

The National Library of Wales, Aberystwyth.  
Details of Council Room, Fireplaces, President's and Librarian's Rooms, and other interior furnishings. Mr. Sidney K. Greenslade, A.R.I.B.A., Architect.  
Longstone Hall, Cambridgeshire, Doorway from Terrace to Stables. Messrs. John W. Simpson, F.R.I.B.A., and Maxwell Ayrton, A.R.I.B.A., Architects.  
Dublin Housing Scheme, Church Street. Mr. Charles J. McCarthy, F.R.I.B.A., City Architect of Dublin.  
Fireplaces, Tipton Hall, near Chesterfield. Measured and drawn by Mr. George W. Wightman.

## CHEAP BUILDING.

Never before, probably, in our own time were the temptations to build cheaply more prevalent than they are likely to be in the immediate future. High prices of material will induce clients of all classes to insist that expenditure on buildings shall be limited in every direction, and architect and builder will not seldom listen doubtfully to the demands made on their ability to meet the requirements of their patrons. It will be well for all concerned if cheap and bad building is not insisted on. There is no real economy in that. Evidences enough surround us in every direction. But there are reasonable limits of expenditure which are sometimes exceeded needlessly because the architect does not know his business, or because the client's desires manifestly are beyond his means. If to compass his expectations he wants cheap bricks and wood and stone, or thin walls or scantlings, then it is the duty of any self-respecting architect to warn him that his mistake will cost him more, and to advise a less ambitious scheme, rather than the acceptance of a manifestly inadequate tender, or the cutting down of the essentials to safety or durability.

But it is the architect's duty and interest to study economy of the right sort. At the outset he should not burden his clients with a wasteful plan. He should eschew long corridors and rooms with a corridor on two sides. He knows, or should know, that rooms too big for their needs, lighted by windows that are extravagantly wide, with doors in wrong positions, and fireplaces too large for the benefit of anybody but the coal merchant, are costly blunders and lasting drawbacks. He should remember that economy of plan saves wear and tear not only of the building but of the lives of those who have to inhabit or work in it. To the novice these things never occur, but they, and others like them, are the secrets of good planning and the guarantees of genuine thrift.

Economy of construction—that is to say, the scientific treatment of materials and the mechanical arrangement of all members of a building so as to ensure perfect adaptation to their various purposes—is another *sine quâ non*. Few of our own readers need reminding of this, but in the absence of effectual architectural control how often we see almost total disregard of the necessity that every member—column, arch, beam, or strut—should be apportioned to the stress. Instead of due care to secure this, we see arches ill-proportioned to their load, sometimes unnecessarily thick, at others without adequate abutments, or of the wrong shape. Flat segmental arches, for

instance, over wide openings, carrying lofty walls are used, apparently in utter ignorance that they are quite uneconomical in comparison with a good iron girder which exercises a considerable thrust, and that where space is precious a pillar or stanchion is cheaper in the best sense of the word than a stone column. Lumpy iron columns, or girders manifestly too large, add needless and undesirable loads to buildings, and reduction of all the sections to the lowest limits compatible with safety saves money and lessens the weight on the foundations. On the other hand, the reckless substitution of iron for brick or stone may soon degenerate into very bad economy, if means for prevention of corrosion or protection from fire are ignored. Even under the best conditions the constant need of inspection and repainting of ironwork means anxiety and expense, and the architect will therefore limit its employment wherever damp can reach it or it is exposed to the corroding defilements of the air of our towns and manufacturing districts.

Selection of materials, it goes without saying, is another factor of true economy; but a proper use of them must follow. How frequently when best quality, hard, and well-burnt bricks have been used for the facings of buildings we find the sides thereof which are most exposed to the weather built of poorest quality soft bricks. Again, is there a street in London where buildings of a good class are fairly numerous, where soft, open-grained stone is not perishing, because it was bought that it might be more easily worked and carved? Not many yards from this office, during the past thirty years the almost constant work of cutting out stone of that sort, and the work of the carver thereon, have been in progress, and are likely to be, for just the same stuff has been and is being inserted, which will in due course disappear, and with it the decorative work that is being wasted on it.

Next to careful planning and the thoughtful consideration of construction and materials surely comes economy in style. Why should architects of ordinary structures for business purposes or habitation add in so unnecessary a fashion to their cost by the adoption of irregular styles and methods, in which the features are sometimes almost freakishly varied by the introduction of a number of roofs or windows of different size and construction? Why is the repetition of the same window along a front where the same conditions prevail, or the general adoption of the same form of roof or ornamental features, tabooed as "monotonous"? Why, again, in the design and arrangement of parts and fixtures should not the architect give economy his consideration?

Why three or four wrought-iron rain-water pipes where one would suffice, and lavatory waste-pipes so arranged that stoppage is certain sooner rather than later, with constant resulting cost of clearance and repairs? All these things may be beneath the notice of the man who can make picturesque drawings, and affects to regard the practical details of construction as only concerning the "mere engineer" or builder. But they are well worth the study of those who, we trust, are to have better times presently than some of us have had of late. They will have them ere long, we are convinced, and they will have that best of all the opportunities of the architect, the demonstration to the public that there is science in design, and that he who best interprets the needs of his client, instead of indulging his own fads, has really caught the spirit of the Mediaeval architect, who did not copy styles or plans, but made his plan really conform to site, material and purpose, and found his reward in the realisation of original effort, and the achievement well deserved success and legitimate self-satisfaction.

## WEATHER WOES.

Last week's weather has left its mark all over the country. It is comparatively seldom that March, even with its worst of many weathers, reminds us that, after all, we are only a little group of islands in the far North Sea, and in the same latitude as many Continental districts which, unfavoured as we are by the Gulf Stream, expect as a matter of course blizzards and snowfalls of the sort which afflicted us so sorely in the closing week of a month usually trying, but not often so exasperatingly bent on doing its worst.

How many roofs stood the blizzard and snow of yesterday week, we wonder? Theoretically the construction of a roof that will throw off rain and snow beyond the walls is plain sailing. In practice, many a householder knows, it is the reverse. Many builders, determined to make the roof a "picturesque" feature, ruthlessly defeat its main purpose either by placing two gables in stupid proximity or forming flats and gutters where the principal is bound to come. In others the real object seems to have been emulation of the water engineer who has to design a reservoir or catchwater. So we get a big dam, not that which deters the lips of the suffering householder, but one, a valley formed by the slopes or sides of adjacent roofs, and penning up the water, which cannot escape fast enough through the blind gutter made the high the obstruction. Again, there is the chimney on the outside wall carried above the roof, against which the drifting snow lodges, soaking into the

warm brickwork, and finding entrance to the ceilings of the bedrooms. A small steep roof with a ridge across the angle would throw off the snow on either side, besides helping to steady and support the stack. Why, again, when it is so easy, as we have many times pointed out, to place inverted troughs of wood or iron or a simple V-shaped trough with its apex upwards along the gutters, so that when the snow melts the water can easily escape by the gutters, is it not often done?

Buildings with steep mansard roofs and parapets have suffered as usual through the choking of the gutters. Many builders still ignore the fact that the least desirable angle is that flat enough to afford lodgment for large masses of snow before they begin to slide away, and which wantonly tempts the wind to tear the slates off. Why is not some more permanent protection provided for gutters than the temporary makeshift of two boards leaning together at the top? Short pieces of galvanised hoop-iron under the slates at intervals, the ends made to turn upwards, are better, or even movable sections of galvanised iron wire placed over the channels. Why, again, is the search for a watertight skylight in an average house as futile as that for the philosopher's stone? A wooden skylight, of course, under the most favourable conditions, is always subject alternately to the soaking rain and the hot sun, the effects of which are intensified by the use of unseasoned stuff and bad workmanship. Instead of 2½ in. or at least 2¼ in., they are often only 1½ in. or even 1¼ in. thick; no capping is provided to cover the joints, there are no tongues, and the putty is bad and worse applied. That soon shrinks; so does the kerbing, loosening or cracking the lead, the sashes warp, and the stiles and rails shrink and admit the wet freely.

How many readers were busy yesterday week plugging and wedging that unique specimen of modern joinery the sash window? Many builders would smile at their protests, or their timid suggestions of the value of double windows, or at any rate of extra-thick sashes, weather-bars, or grooved-and-tongued stiles. Even in better work, when the architect specifies these, and draught excluders, thanks to modern contract work, machine labour, and bad foreign timber, good workmanship is thrown away even when it is obtainable. As just now good and bad alike is commandeered by the Government, we shall have leisure to meditate on our miseries, and when the good weather comes forget all about them and move into a cheaper house, where they will be intensified tenfold when next March scourges us all again, and once more suggests that, being by nature cave-dwellers and children of wrath, we are not likely to benefit much as children of the grace of the house-builder whose contempt for those who fondly fancy that shelter is the primary purpose of a dwelling is only surpassed by his ignorance of the means to ensure it.

A factory is about to be built in Cogar Street, Pollokshaws, Glasgow, for Messrs. Gibson Brothers and Co.

Mr. F. W. Jones, the town surveyor of Frome, having accepted an appointment under the Stratford-on-Avon Town Council, a special meeting of the Frome Urban District Council has been held at the public offices to make arrangements for the carrying on of his work. It was decided to appoint Mr. L. Slaughter, sanitary inspector, as acting surveyor, with an addition of £50 to his salary; also to increase the road foreman's wages by 5s. per week, to increase the salary of the assistant clerk by £13 per annum, and to employ Mr. A. I. Young to assist Mr. Slaughter at a salary of 10s. per week. It is estimated that in this way a saving will be effected of £158.

## FREAKS AND FANCIES OF CATHEDRAL BUILDERS.

Under this attractive title Mr. F. E. Emler delivered a lecture, illustrated by between eighty and ninety lantern slides of admirable quality, before the St. Paul's Ecclesiological Society, at the Chapter House, E.C.C., on Wednesday evening. Mr. R. Garraway Rice, J.P., F.S.A., occupied the chair.

The lecturer explained at the outset that he did not propose to confine himself to the cathedrals and larger churches, but should also refer to points of interest in some of the smaller parochial buildings. The few churches of Saxon date were of great value and importance, and he would begin with the little church of Brixworth, Northants, in which old Roman bricks were re-used in arches. At the slightly later church of Earl's Barton, in the same county, the interest centred in the fine unbattered tower, divided into four stages by string-courses and externally ornamented by a series of pilaster shafts and quoins arranged in the long-and-short alternative characteristic of the period. The western doorway, illustrated in greater detail, exemplified the crude, rough workmanship of the tenth century; an attempt was made at decorating the imposts of the doorway with circular arches. Of somewhat earlier date, but of the same type, although less rough in treatment, was the parish church at Barton-on-Humber. At the time of the death of William the Conqueror vast church building schemes were in progress, and the ambitious projects were in great measure carried to completion in the days of his successor.

Flambard, afterwards Bishop of Durham, an excellent builder but a bad ecclesiastic, was credited with the erection of the earlier portion of Christchurch Priory, Hants. The north nave arcade of this priory, built about 1097, showed no stinting of material; the shallow surface ornamentation of the tympana of the triforia was obviously worked with the axe and not with the chisel. More advanced in style was the arcade of the choir of Peterborough Cathedral, c. 1140; here the plate tracery of each tympanum was pierced, and exhibited an early form of open stonework that was to develop into very beautiful outlines in the course of the next 350 years. At Rochester building work was going on about the same time, and the beautiful western doorway (c. 1130-40) displays a marked advance in mason craft. The central subject in the tympanum, Christ in Glory, is seen to still greater advantage in the Prior's doorway at Ely Cathedral, c. 1140, probably the finest example of this subject carved in a vesica upon a tympanum. Another doorway of great interest is that in the western façade of Lincoln Cathedral. By this time the chisel was well known, and was used with considerable skill and effect. One of the carved jambs of this portal was shown and also a larger scale single carved subject, the Temptation of Adam and Eve. Into this same front were inserted some quaint panels, apparently from an older fabric, illustrating Noah building the Ark, Noah and his Family leaving the Ark, Daniel in the Lions' Den, and the Torments of the Lost. At Adel Church, near Leeds, is an interesting doorway on which elaborate carving has been lavishly expended. In the top panel is the Agnus Dei, and the other panels contain Our Lord seated and figures of the Four Evangelists. The fine knocker attached to the door of this church, and a similar one on the door of All Saints', Pavement, York, were shown, the lecturer expressing grave doubts as to whether these or other church knockers ever gave an accused man the right to claim sanctuary privileges. The west front of Illey Church, near Oxford, was about twenty years later in date than the Prior's portal at Ely, and exhibited a profusion of crowded detail, including some characteristic beakheads, supposed to represent the evil spirits ready to seize upon the souls of those who entered the church in a heedless or irreverent manner or were indifferent to its teaching; the hood moulding at Illey was beautifully carved, and the medallions appeared to represent the signs of the Zodiac, beginning with Capricornus. The little church of Barfreton, in East Kent, had an elaborate decorated south doorway,

in which the animal kingdom had been very freely drawn upon by the sculptor for subjects. In one little carving a man was playing a kind of fiddle, while a hare performed upon a pipe; in another a pig was twanging the harp and a man danced to its strains. Another medallion showed a pair of bears enjoying a hind of wild honey, and yet another depicted a monkey or fox riding upon a goat and carrying on his shoulder a stick from which a rabbit was suspended. The whole series was of considerable interest, but it was difficult to decipher the incidents owing to the ravages of time; but by reason of the slight protection given by its recessed position, the tympanum did not seem to have suffered so severely. The subject of the tympanum, as at Rochester and Ely, was Our Lord in Majesty, but in addition to the rainbow and angels there were portrayed a king and queen and various beasts, possibly signifying the Four Living Creatures that were round about the Throne, viz., the lion, the calf, the beast with the face of a man, and the flying eagle, everywhere recognised as the symbols of the Four Evangelists. It was instructive to compare the work of different sculptors working independently in different parts of the country within a few years of each other on the same symbols. Inside Barfreton Church was a frieze of grotesquely executed animals, obviously not designed or carved by the artist employed on the south doorway. The north door was built up, but the capital of a pillar was represented by a double-bodied dragon with a single head, and close by was a devil with an extremely ugly face. Towards the end of the twelfth century, a change, Mr. Emler continued, was gradually coming over the architecture of the country—the religious communities had bodies of men working for them for long periods together, and perhaps many of the rich carvings, such as we have seen at Barfreton, owe their origin to the premier Cluniac house of Lewes. The black marbles of Belgium and the trade in Purbeck marble shafts that had grown up was gradually influencing the builders—the turned marble shafts induced the round-planned abacus and the moulded capital, and these in turn led to changes in the arch-moulds and enrichments. From Lewes the influence of the craft spread to Canterbury and Chichester, and it soon became known as the London marblers and white-stone cutters. This by 1200 had spread to all parts of England. The font of Brighton perhaps owes a good deal of its decorative effect to Lewes. It is a very interesting example of Norman work, being of the circular or tub shape form. It is hewn from a single block of Caen stone, and the sculpture is divided into four panels; the panel facing east contains a representation of the Last Supper, a somewhat unusual form of decoration for a font. Only six of our Lord's Apostles are shown—three on each side of the Master, who is in the act of blessing. His right hand being raised over the chalice, while His left rests upon a loaf of bread. On another side is a ship with sails furled, while two figures are in the ship, and a female figure stands in the water; it depicts an incident in the life of St. Nicholas. Another slide showed the other end of the ship, with St. Nicholas, who was Bishop of Myra, standing apparently in the water. The other panel contains two figures. The meaning of this scene does not appear clear, and it cannot be identified with any known legend connected with the life of St. Nicholas. Another font of great interest is that of Winchester Cathedral, made of Tournai black marble, and square in shape. Two of its four sides are carved with incidents in the legendary life of St. Nicholas. All these legends can be found in the Golden Legend. The slide showed St. Nicholas being thanked for having given dowries to a nobleman's three daughters. The next depicted in a somewhat crowded and mixed up way two other incidents in the bishop's life, while the next slide gave the same scenes, the photograph having been taken from a somewhat different point of view. It is believed that this font was worked at the quarries of Tournai and shipped to England, probably to the order of Henry of Blois, Bishop of Winchester, who

was a brother of King Stephen, and who occupied the See of Winchester from 1129 to 1171. Another interesting bit of carving is that of "Moses," from Wimborne Minster, dating from somewhere about 1220.

Mr. Prior says that Bristol, the great commercial city of the West, was the headquarters of a school of masons. Here they were reared and dispersed to various centres of work, and their influence can be traced from one building to another; they were working at Glastonbury and Wells at the same time, somewhere about 1184, but Wells shows the greater advance; the work was going on right up to the time of the Papal Interdict of 1207. The Toothache capital at Wells is a fine example of vigorous carving; the pose of the yeoman of the period showing the tooth that is causing all the trouble is very natural. Is it too great a stretch of fancy to suppose that the carver, left to his own devices, had seized upon an incident that had come under his own observation just about the time that he was to mount the scaffold to work upon the block of rough stone, and that, under his skillful handling, it assumed the fine, vigorous portrait that we have left to us to-day? Sixty years later the Chapter House and Cloisters at Salisbury were under construction. In the Chapter House is a series of sculptures depicting Old Testament scenes. A somewhat striking grotesque is shown in the terminal of the moulding of an arch in the nave of Beverley Minster. It is called the Devil in Pain; he seems to have rather a bad attack of lumbago, and the pain is severe if the expression of his face and the size of the mouth he is opening are any guide.

In 1338 the West doorway of York Cathedral was under construction; it was a time when the Decorated style prevailed. The doorway is a beautiful specimen of the work of the period: the mouldings and decoration are very profuse. In the central niche in the gable is the figure of an archbishop, probably Archbishop Melton, the builder, while on either side of the gable are statues of Percy and Vavasour, representatives of two well-known families in the North, who gave the wood and stone for the building of the nave. A portion of the sculpture on the West front of Exeter Cathedral was the subject of the next picture; this sculpture dates from a year or two before the visitation of the Black Death, in 1349, and occupied about forty years in execution. The whole scheme is to illustrate the Coronation of the Virgin. For many years it was thought that the top row of figures shown on the slide represented the Kings of England, consequently when the figure fell down that originally occupied the second niche from the right in the slide, a well-known sculptor, in practice in Exeter, carved a seated figure of William the Conqueror and placed it in position as we see it now. That row of figures does represent kings, but they are the Kings of Judah. The scene now shifted to the nave of Winchester Cathedral. William of Wykeham transformed this nave from a Norman building into that of an Early Perpendicular one. We are on the spot where many an event of national and historical importance has taken place. It was in this cathedral where Henry I. was married to Matilda. King John was received back into the Church by Stephen Langton after the Papal Interdict was withdrawn. Queen Mary Tudor was married to Philip of Spain, and the chair in which she sat is still preserved in the Lady-chapel at the eastern end of the cathedral. But perhaps the most momentous of all the events occurred in 1642, when the Parliamentary Army, after besieging and taking the town, marched into the cathedral during service time, after having broken open the great western doors, and with drums beating and colours flying, and accompanied by a company of horse, they commenced an orgy of destruction of furniture, service books, vestments, etc., and finished by raiding the muniment room, scattering deeds, documents, and valuables in all directions. A second visit from these iconoclasts took place four years later, and was even more disastrous than the first, for many a valuable MS. and document was destroyed or stolen. It was during one of these visits that Col. Fiennes stood sword in hand

in front of the chantry of William of Wykeham that is situated on the south side of the nave to protect it from harm. He was a Wykehamist, and threatened to run anyone through who dared to harm the chantry of the founder of his old school. The reredos was commenced in the first half of the fifteenth century by Cardinal Beaufort. In 1538 it was despoiled of all its images; within recent years it has been restored to something like its original beauty. The choir stalls are splendid examples of the carver's skill. They date from about 1505; they are about the earliest set of stalls we have. At the easternmost end of the northern range of stalls we see Prior Sikkede's pulpit with his name carved upon it. He was Prior from 1493 to 1524.

At Ely we have a fine example of elaborate two-storied stallwork. The lower canopies have a pointed arch with compound ogee cusping; above each of these is a niche with three gabled canopies carrying a low spirelet, which is flanked by ornate pinnacles, the whole forming a beautiful composition. This fine work was begun in 1358, and carried through with the other work caused by the falling of the central tower in 1332. Most cathedrals and collegiate churches contained specimens of this elaborate stallwork, and we have to be very thankful to-day that so much of this still exists. When we come to think of the time, energy, skill, and money bestowed upon work like this, we can only be filled with admiration and amazement for those who undertook and carried out such work. The stalls at Wells were under construction a year or two before those of Ely—about sixty were needed, and each stall was said to cost about £20, a sum that would equal in our day quite £300, if not more. That means that the cost of the sixty stalls of Wells Cathedral, with their tabernacled canopies, would cost somewhere near £20,000 of our money. Those of Ely must, therefore, have cost a much larger sum.

The stallwork at Christchurch Priory Church is not so elaborate; much of it is Early Renaissance work, carved about 1515 by members of an Italian band of artists brought into this country by the revival of learning. During the greater part of the church service in pre-Reformation days the monks and canons who occupied these stalls had to stand or kneel. There was very little provision made for sitting during these very long services; consequently, it was a somewhat severe trial to the older and feeble members of the community. In order to afford some relief during these long periods of standing, the seats were made to turn up, and a projecting ledge provided at a suitable height, so that the brother would be able to rest without actually sitting down. The under part of this seat is almost always carved, and Mr. Embley proceeded to show a series of these carvings. The formation of the seats was very well shown in the two misericordes from Christchurch. At Exeter there is a series of misericordes dating from the middle of the thirteenth century, including one of a lion. This carving in wood no doubt followed what was generally carved in stone, and although the carver of this particular seat in all probability had never seen a real lion, he had some idea of what the animal was like from sculpture in stone that he had met with on some other buildings. There was a good deal of symbolism in this animal sculpture. When our Exeter lion was carved it was an age of symbolic teaching, and the lion was said to represent Our Lord, owing to the supposed characteristic that a lioness was supposed to bring forth her young cubs dead, and on the third day the father lion comes along and utters a terrific roar which brings them to life by his breath. Hence the lion becomes a symbol of the Resurrection. But we are also told that the Devil goes about like a roaring lion seeking whom he may devour, so the lion can also typify the Devil; but really the Exeter lion looks too good for that, so we must take it that he represents the lion of the House of Judah, Our Lord himself. At Ripon there is a fine series of misericordes, including one of the Mermaid, normally represented with mirror in one hand and comb in the other. The Physiologus says she is like sirens, who make music and very sweet song, and by their dulcet voices charm the ears of

sailors to a bay, so that they become drowsy; then when they are asleep they attack them and tear them to pieces. The moral is that women like mermaids and sirens speak fair, but their deeds are evil. The mermaid is frequently used to a didactic purpose, and here is an example where it adorns a bench end, the carver having placed the head in the end of the seat. At Ely we have an illustration of the mermaid being accompanied with dolphins. The motif frequently occurs in Greek mythology and Greek art. Its special function was said to be that of bearing the souls across the sea of death to the islands of the blessed. An early piece of carving is shown in the Boston Misericorde; it dates from 1390, and illustrates the effect of the mermaid making sweet music and causing the mariners to be drowsy and fall to sleep. The fox is one of the characters of the Physiologus. Within he is described as a very crafty and cunning animal, when he is hungry and does not find anything to eat, he looks for a place with red soil and rolls on it till he seems to be all bloody, and holds in his breath till he is quite swollen. Then, seeing him lying on his back all bloody and swollen, the birds think he is dead, and settle on him to eat him, but Mr. Fox snaps them up instead. This is shown on the Chester Misericorde. In the centre the birds are gazing at the fox, who lies on his back and is feigning to be dead. In the right supporter he has come to life, and is gobbling up one of them. The same scene is shown on the much earlier Alne doorway, and is inscribed "Vulpis." The moral, as given in the old English Bestiary, is: "He who tells idle tales and indulges in carnal pleasures pecks at the skin of the fox and tears its flesh; but the Devil seizes the sinner and drags him down to murky hell." Chaucer's version of it is given in the tale of the Nun's priest, in the "Canterbury Tales." The Ely Misericorde, dated 1338, illustrates the same story—while the Ripon carving gives a very vigorous rendering of Master Reynard running off at full speed with a goose in his mouth.

The mediæval romances were very much in favour before the introduction of printing, and perhaps that of Reynard the Fox was the most popular. The main plot was concerned with the long struggle between Reynard the fox and Isengrin the wolf, the fox impersonating mental ability and the wolf brute force. Though frequently reduced to the greatest straits by the power of Isengrin, Reynard generally gets the better of him in the end. The whole story is much too long to attempt to tell, but we see in the slide of a misericorde at Beverley Minster that Reynard would appear to be about to pay the penalty for one of his many misdeeds. On the right of the gallows geese hold the sword and move as officials in charge of the execution. In the right supporter we see the ape untying the noose after Reynard has been hanged. The left supporter probably depicts the scene for which Reynard pays the penalty. This ending of Reynard hardly accords with the generally accepted end of the cunning rascal, for he usually lives to see all his opponents overcome.

Another slide from Ripon depicts a fox in a pulpit preaching to a cock and goose, while at Christchurch we not only have the fox filling the pulpit, but at the back, acting as clerk, is a diminutive cock perched upon a stool. Two monks appear as foxes receiving instructions from their superior, who is reading from a scroll; the monks no doubt are going on a journey, for they have provided themselves each with a good fat goose, which is tucked away in the cowl, and each, you will notice, carries a crozier. Now, what do all these scenes mean? Are we to suppose that the preacher was to be looked upon as a cunning rascal like the fox? Probably they are all satires not on religion but rather preaching, and, if so, most likely they are hits against the preaching friars, for the regular or parish clergy were no lovers of preaching, and the friars took advantage of this, and by their preaching lured away the congregations from the church to listen to their own teaching.

Another slide from Ripon shows a pig playing a bagpipe while two of its youngsters are dancing.

At Winchester we have a pig playing a fiddle, with another either dancing or joining in the chorus, and part of the same seat there is an old sow playing a double pipe while its youngsters are partaking of some necessary nourishment, but one of the babies happens to be crowded out, and consequently is lifting up his voice and squealing. Biblical subjects do not appear to be very numerous in these carvings. Here is a misericorde from Ely of the temptation of Adam and Eve in the Garden of Eden. Between the two figures is the Tree of Knowledge of Good and Evil, and twined around it is the serpent with a man's head. A second illustrates the Expulsion from the Garden. In addition to Adam and Eve we have the Angel with the flaming sword. Another shows us Samson killing the lion. At Ripon we have illustrated another scene in Samson's life: he is carrying away the Gates of Gaza.

Two misericordes, also at Ripon, refer to Jonah. In the first he is being thrown from the ship, and the whale or big fish is waiting to receive him. The next slide shows him cast up on to dry land from the whale, whose head is shown in the sea.

The beheading of John the Baptist is very well illustrated in the Ely misericorde. Note how the supporters help to fill in the whole of the incidents leading up to and after the execution.

Gambling is one of the subjects found at Ely. Here we have two men throwing dice; in the supporters the idea of dissipation is carried out. A housewife is turning over a hive, and thus losing her stock of honey or sweetening material, while the man on the right is drinking more beer than is good for him.

Satan putting evil thoughts into the mind of man and woman who ought to be engaged in meditation upon holy things also comes from Ely. One of the figures is supposed to be telling her rosary, while the man has a missal or book in his hand. A little domestic difference between a man and woman is the subject of another Ely carving. The man seems to be getting the worst in the little scrap, which the lion attendants seem to be enjoying very much. A domestic scene shows a good housewife busy preparing the dinner. The pot is hanging over the fire, which the man seems to be in the act of blowing up with the bellows, and the lady is about to place something from her platter into the pot. A scene of a somewhat different character, also from Boston, was shown in a slide. In 1390 they did not spare the rod and spoil the child; no thrashing was the rule, and here we see it being carried out. Three boys are spectators while their companion is being birched; the master seems to be laying it on pretty heavily.

At the close of the lecture a hearty vote of thanks was accorded to Mr. Emmer, on the motion of the chairman, seconded by Mr. Paley Biddon, F.S.A.

The town-planning scheme propounded by the urban district council of Bentley with Arksey, near Doncaster, has been sanctioned in its entirety by the Local Government Board.

The Glasgow Corporation has secured to the public for all time access to Loch Lomond by the purchase of an estate of great natural beauty, Knowles Balloch Estate, comprising some 812 acres, with the Castle of Balloch and beautiful wooded policies. The mansion overlooks the site of the old fortalice of Lennox Castle, formerly the residence of the Earls of Lennox, and its elevation commands a splendid view of Loch Lomond, with Ben Lomond towering in the distance.

The Foleshill Rural District Council received on Wednesday a report that the British Structural Syndicate of Birmingham had written the Local Government Board concerning the council's refusal to sanction plans for bungalows for munition workers, suggesting that the refusal was based on by-laws framed many years ago and not in keeping with modern requirements. A letter from the Local Government Board suggested that the council might take into consideration the revision of their by-laws. The matter was left in the hands of a committee. The proposal of the syndicate is to erect some hundreds of bungalows on an estate at Foleshill.

## THE LONDON COUNTY COUNCIL.

At the meeting of the London County Council yesterday (Tuesday) afternoon, a comprehensive report upon overlapping in respect to the Council's powers and duties was presented by the clerk. It was stated that overlapping of the work of the architect and other officials occurs in several particulars. Thus, under the Factory and Workshop Acts, 1901 and 1907, the Council makes requirements in respect of the means of escape in case of fire from factories, workshops, and laundries in the administrative county, including the City of London. The Home Office appoints inspectors of factories for the inspection and regulation of employment in factories and workshops, who see that the means of escape provided are properly maintained. The metropolitan borough councils (and the Corporation in the City) deal with sanitary and other matters in factories and workshops, and those authorities report annually, through their medical officers of health, on the administration of the Factory Acts in their districts. Again, the Council is the authority for administering the London Building Acts, and its expenditure (except in respect of dangerous structures and sky signs) is a general county charge. As regards the City, the Corporation is the authority under Part IX. and XII. of the Act of 1894 (dangerous structures and sky signs), and certain parts of the Act do not apply, other statutory provisions administered by the Corporation being substituted for them. Orders made by the Council under Part IV. of the London Building Act, 1894, relating to the naming of streets and the numbering of houses are carried into effect by the City Corporation and the metropolitan borough councils respectively. In the case of default by those authorities, the Council may execute the orders. The administration of section 134 of the Act of 1894 (sky signs) was transferred by the London Government Act, 1899, from the Council to the metropolitan borough councils, but the Council has power of action in default. The Council has power under section 83 of Act of 1894 to license "iron or other buildings or structures" of a temporary character, and the metropolitan borough councils have power under section 84 to license "wooden structures." The Council has been unable to agree with borough councils the line of demarcation between these two sections. The Council's powers under section 170 of the Act of 1894 (demolition of buildings in case of conviction) may be exercised also by the metropolitan borough councils, but only in cases in which the borough council has obtained the conviction. The Council's powers under section 171 of the Act of 1894 (removal of buildings in advance of general line) may be exercised by the metropolitan borough councils in like manner as by the Council. The Council's powers under sections 197 and 200 (11a) of the Act of 1894 (piling of timber, etc.) may be exercised also by the metropolitan borough councils within their respective boroughs. Structural projections are dealt with by the Council under section 73 of the Act of 1894. Lamps and signs and other structures overhanging the public way not being within the City (which is provided for in a special Act) are dealt with under the Council's by-laws made under section 164. Notwithstanding the Council's consent under the Act or its by-laws, a borough council can object to a projection if it be an annoyance in consequence of its endangering or rendering less commodious the passage along any street. The Council and the City Corporation are the authorities for making by-laws under the Advertisements Regulation Act, 1907, for the county and the City respectively. By-laws made by the Council under section 2 (1) of the Act relating to hoardings are enforced by the metropolitan borough councils.

Proposals for providing further school places have to be submitted to the metropolitan borough councils, who are, under statute, afforded an opportunity of expressing their views thereon. The result is frequently long negotiations and protracted inquiries before inspectors of the Board of Education as well as contests before committees of Parliament. Similar cases of overlapping occur with

the engineer, the housing manager, the chief officer of tramways, and other officials.

The Special Committee on War Estimates, commenting upon this report, observes that some members of the Committee held that important economies would result from a reduction in the large number of authorities entailed by the present system of municipal administration in London, by greater concentration of central powers and supervisory control of local authorities. They felt, however, that at the present time no such reconstruction was possible unless initiated by the Government on the plea of national necessity. By the rest of the Committee, however, it was considered that there was no evidence that such a reconstruction of the government of London would result in a more economical system than that now existing.

A supplemental estimate of a further £10,000 was submitted by the Road Drainage Committee as the probable cost of constructing the Bermondsey and Southwark storm relief sewer, on which votes amounting in all to £113,000 have already been granted and expended. Revised estimates amounting to £73,769 were submitted for rebuilding, enlarging, and remodelling schools, and also £8,500 for furnishing and equipping the same were submitted, and it was reported that over £1,950 had been expended upon providing dark curtains at the Council's technical and evening institutes.

The Establishment Committee reported that Mr. G. H. Macfarlane, a senior assistant in the architect's department, and Mr. H. L. Penfold, an assistant in the second class in that department, will attain the age of sixty-five years on May 31 and April 27 respectively. Mr. Macfarlane and Mr. Penfold entered the service of the late School Board for London in September, 1872, and April, 1889, respectively. Retiring allowances, amounting to about £160 and £70 a year respectively, would be payable to them out of the superannuation and provident fund, and the committee recommended that Messrs. Macfarlane and Penfold be retired as from May 31 and April 30 respectively.

The Highways Committee recommended that, during the absence through illness of the chief officer of tramways, the deputy chief officer of tramways (Mr. J. K. Bruce) take the place of Mr. A. L. C. Fell as one of the representatives of the Council on the Rolling Stock and the Permanent Way and Building Conciliation Boards.

Mr. C. J. Jenkin, M.Inst.C.E., engineer and surveyor to the Finchley Urban District Council, who recently returned from Red Cross work in Serbia, has accepted a commission as captain in the Royal Engineers, and will shortly be leaving for the front.

It has been decided to set in Rugby Chapel a memorial of Rupert Brooke. It will take the form of a portrait medallion in marble, based upon a photograph by Sherril Schell, which appears as the frontispiece of the 1914 volume of poems. The medallion will be the work of Professor J. Havard Thomas.

The city council of Rochester have resolved to exercise an option to purchase land in Steele Street, Strood, for the erection of workmen's dwellings to take the place of those recently demolished in other parts of the city. The purchase price of £555 is to be paid out of revenue.

At last week's meeting of the corporation of Dublin, Alderman T. Kelly, in moving the adoption of the housing committee's report dealing with the Newfoundland Street site, said that the next housing committee would deal with the congested area of the Mountjoy Ward, and would probably include the land held by the late Mr. Walker—the Marino estate, and would involve an expenditure of from £700,000 to £800,000.

Some carving has been completed on the bench ends of the stalls in the chancel of St. Kea Church, near Truro, at the cost of Miss Daubuz, in memory of her brother, the late Mr. J. C. Daubuz. On the four bench ends the coats of arms of eight cities in Belgium have been carved, two on each, viz., Antwerp, Bruges, Liège, Dinant, Yperen, Dixmude, Malines, and Louvain. The carver, a Belgian, to whom the late Hon. John Bosawen had given employment on the Tregye Estate, is M. Edward Haesendonckx.



## Corrente Calamo.

Every tenant is entitled to deduct the income-tax under Schedule A, commonly called the property tax, when he pays the quarter's rent next becoming due to his landlord. He should also at the time produce his receipt for that tax to show he has paid it. With regard to houses let at rack rent in the usual way for occupation, there is no difficulty. For the property tax is assessed on the separate house, and the tenant is primarily liable, so that it is easy for him to deduct the sum paid from his next rent. But as to ground rent the practice is different. Land owners, in sending their applications for rent, usually half-yearly, deduct the tax themselves, and so allow it without proof of its payment. Indeed, there is no separate assessment under Schedule A except in regard to the gross value or rack rental of property, and this is payable by the occupiers of houses leased. In the recent case of "Barnes v. Kyffin," which was an action to recover possession of twelve houses and two quarters' rent, apparently ground rent under a lease, the defendant had tendered this rent less tax, which is the usual way under leases. Mr. Justice Ridley, however, held that he could not deduct the tax unless he had first paid it, which he could not easily do, and would probably have done later with his other income-tax; and he only gave defendant relief from forfeiture if the rent, costs, and expenses were paid within a month. This is an unsatisfactory position, and it may be that the Court of Appeal will be asked to settle the practice. The law deals with both rack rent and ground rent simply as rent, but with regard to this tax they are, in business, always dealt with differently.

News-sheet No. 41 of the Bribery and Secret Commissions Prevention League, obtainable at its office, 9, Queen Street Place, E.C., is well worth perusal. There is more need than ever just now for it, seeing that once again the Attorney-General's fiat for a prosecution has been refused to the League. In any other circumstances the delay would have been scandalous in the extreme, but there is this consolation, that experience in this instance strengthens the case for the abolition of the veto—to which, among others, Lord Alverstone, an ex-Attorney-General, was strongly opposed—and that case, we are glad to note, will certainly be pressed again in Parliament when ordinary legislation becomes feasible once more. Some of the more recent scandals are reported in the News-sheet, which conclusively prove that the Act has done much to combat a foul evil affecting hundreds of thousands of honest tradesmen and their customers, but which can only be put in action in many cases by the vigilance of an organisation which all should support. Ordinary measures are costly, and seldom satisfactory. It will be noted that the cost to the nation of the inquiry into the Empire Battalion was approximately £450, but few people, we imagine, think the results obtained were wholly satisfactory.

A timely proposal is made by members of the committee for the exhibition of Mestrovitch's works at the Victoria and Albert Museum to obtain a piece of sculpture by him for one of the national collections, and it is proposed to purchase by subscription his "Mother and Child," and to raise £1,000 for that purpose. It is pointed out that such an acquisition would offer a fitting

expression of gratitude to the Serbian Government for its gift to the Victoria and Albert Museums of the "Torso of Milos." The National Gallery of British Art recently acquired "Premier Matin," by M. Egide Rombaux, the Belgian sculptor, and a like permanent symbol would fittingly commemorate among us the splendid resistance and sacrifice of the Serbian people. A committee has been formed to raise the requisite funds, including Mr. John Lavery, A.R.A. (chairman), Sir Joseph Beecham, Sir J. J. Burnet, R.S.A., Professor J. W. Mackail, Lady Scott, Mr. Glyn Philpot, Professor M. E. Sadler, Mr. Charles Aitken, Mr. Charles Ricketts, Mr. Robert Witt (National Art Collection Fund), Lady Cunard, and Mr. Robert Ross (hon. secretary). Any surplus subscriptions will be handed to the Serbian Red Cross Fund.

We believe that at the conference of representatives of the Allied Governments at Paris last week the rebuilding of the devastated areas of Belgium and France after the war was discussed. The population of the war-swept area in Northern France is 7,000,000, while as many in Belgium have suffered the wholesale destruction of their buildings. The effect that reconstruction on such a colossal scale may be expected to produce on the building resources of Europe can only be surmised. Rebuilding on such a scale would at any time tax the resources of the forests of Europe, which do not suffice in normal periods to meet the maintenance requirements of the Continent. There are two reasons why after the war European forests will not meet the demand. During the war timber outside of Russia has been cut and destroyed at a rate hitherto unknown in Europe, whilst elsewhere on the Continent war has obliterated forests. The timber requirements, therefore, will be enormous. Are they likely to be met, if the supply is to be regulated by Government-appointed agents, as here as present?

Nobody will grudge sacrifices to win the war, but whether they are asked for wisely is another matter. Restriction of imports of raw material is bad enough, but total prohibition of beech, birch, elm, and oak, and also of woollens and worsteds, will soon reduce the furniture trades to the same state as the building trades. Says the *Cabinet Maker*: "The majority of the men employed in the furniture trade in this country at the present time are over military age. If the supply of raw materials is dried up, labour will be forced out of the trade, to seek employment elsewhere, to which the Government would doubtless reply: 'That is exactly the end at which we are aiming.' But there are two sides to every business enterprise—labour and capital. If it is suggested that the labour may be employed usefully elsewhere, what of the not inconsiderable amount of capital employed in the industry? It is not so easy to find immediate use for it, for the simple reason that it would be impossible to realise it under the existing circumstances. The latest list of prohibited imports shows considerable concessions to our Eastern Ally, Japan, and it might be concluded that if the war were prolonged a new style of furnishing would be evolved in this country, in which bamboo, lacquer, and cloisonné ware would figure largely. The exclusion of beech is not without its humorous side. Eighteen months ago we were all of us clamouring for the founding of a bentwood industry in this country which should rival that built up by the Austrians. The exclusion of beech shuts

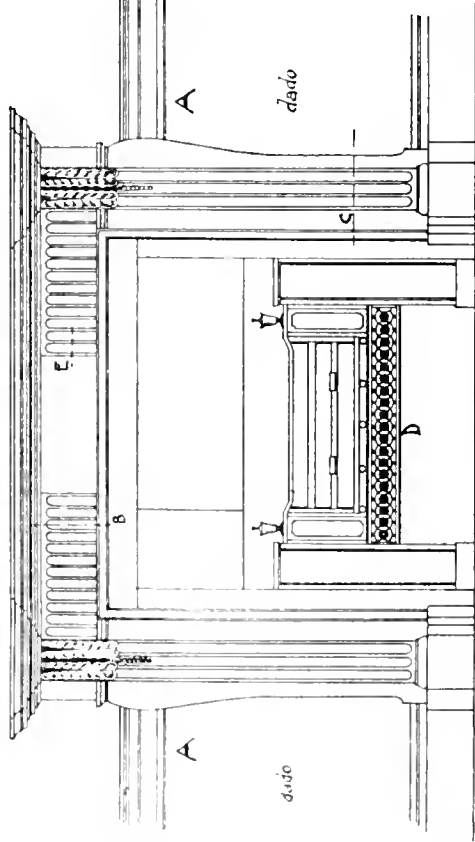
out the raw material of which bentwood furniture is made, so that if it is still seriously suggested that we should capture enemy trade in bentwood furniture, we are in the position of the unfortunate people in Egypt who were expected to make bricks without straw." Not, probably, that this and other considerations of the kind have occurred to the powers that be!

Mr. V. T. Trapp, in a paper entitled "Fire-Resisting Properties of Australian Hardwoods," read before the Insurance Institute of Victoria, gave several examples of the benefits derived from the use of hardwood for building purposes. He stated that ordinary Australian hardwood averages about 2 min. 15 sec. to flame, and has no glow. It takes about three or four pieces of pine-wood to start a piece of hardwood to burn. If when the hardwood is well lighted it is turned over it is hardly three seconds before it is quite black. Baltic pine takes only 30 sec. to flame and glows for 12 to 15 minutes. New Zealand white pine and rimu take 46 sec. to flame and glow for 10 minutes. Another important point is that the older the hardwood the more difficult it is to burn, but the older the pine is the easier it is to burn. Oak takes 45 sec. to flame and glows for 16 min.; American walnut, 1 min. 21 sec. to flame and glows for 11 min. Experiments prove that a 5 by 3 Oregon on a span of 20 ft. will break with a load of 2,028 lb.; 5 by 2 hardwood will break with a load of 1,910 lb., or only 5.82 less, with a saving of 33 per cent. material. In deflection, 460 lb. will deflect Oregon 3.5 in., and hardwood 2.11 in., or 39.7 of the Oregon. To deflect the hardwood to the same extent as the Oregon a load of 750 lb. would be required, or 63 per cent. more weight. Hardwood is a better weight-carrier, has not the same deflection, and is fire-resisting.

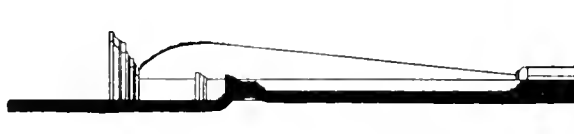
More than ever, in these days, a really reliable "Guide to the Income-tax" is needed by all of us—those, at any rate, who have anything left to tax, and the fifth edition of that by Mr. F. B. Leeming (London: Edinham Wilson, 54, Threadneedle Street, 2s. 6d.) will be found most helpful. The "Foreword" and "Introduction" should especially be studied. In the latter, due credit is given to Mr. McKenna for his return to businesslike finance to which, during Mr. Lloyd George's Chancellorship of the Exchequer, we had become strangers. But, as is pointed out, under any system, if people on the one hand will neglect to avail themselves of the honest relief to which they are entitled, no one is to blame but themselves and, on the other, if disloyal citizens are permitted to shirk their just liabilities, it is disgraceful to the taxing officials. Especially is this so in regard to the trading combinations which call themselves "co-operative societies," which make huge profits under Schedule D and return them to their members as "discounts." Some of these combinations run all sorts of businesses, a newspaper publishing among them, on which the rest of us are made to pay to the last farthing. Why should they escape, and the revenue suffer to the extent of millions of pounds per annum, which others have to make up?

Additions and alterations are about to be made to the home for soldiers and sailors in College Street, Aberdeen. Mr. J. Rust, of Union Street, Aberdeen, is the architect.

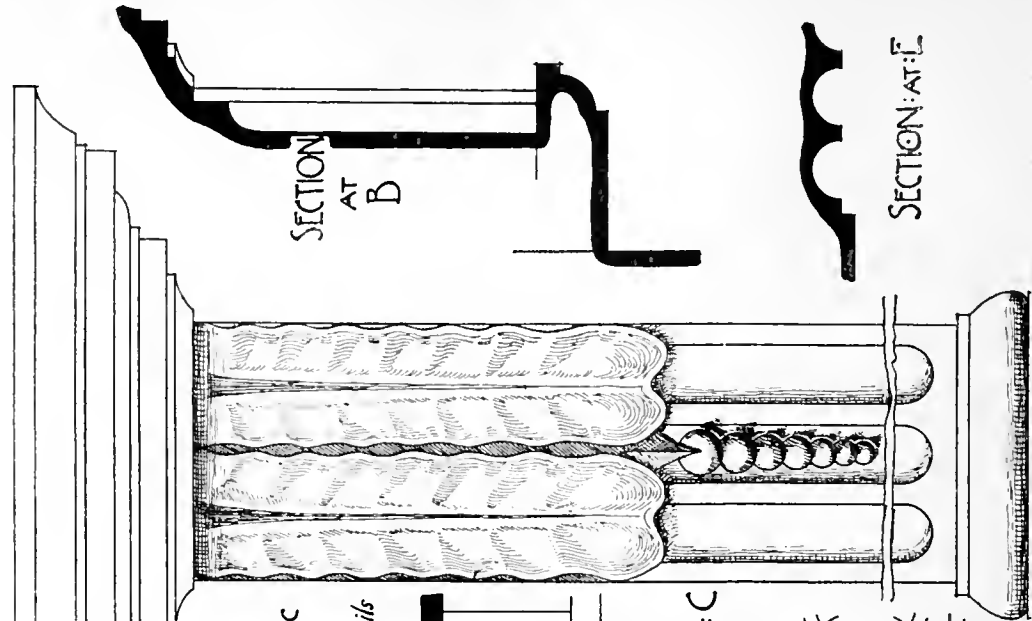
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ELEVATION



SIDE ELEVATION

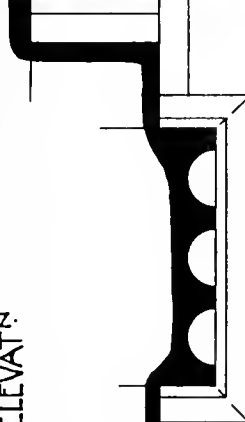


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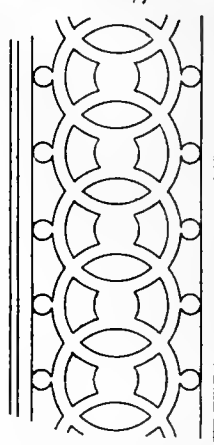
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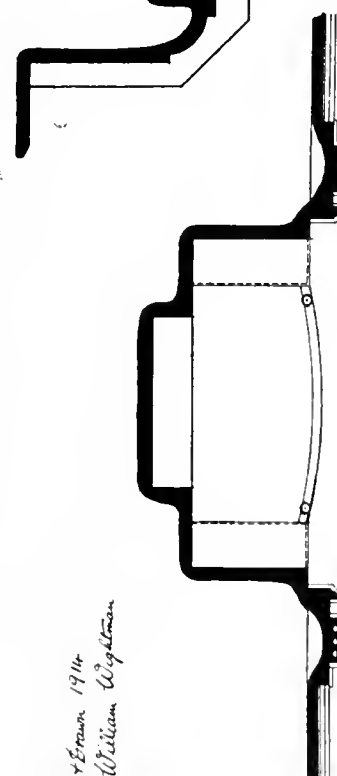
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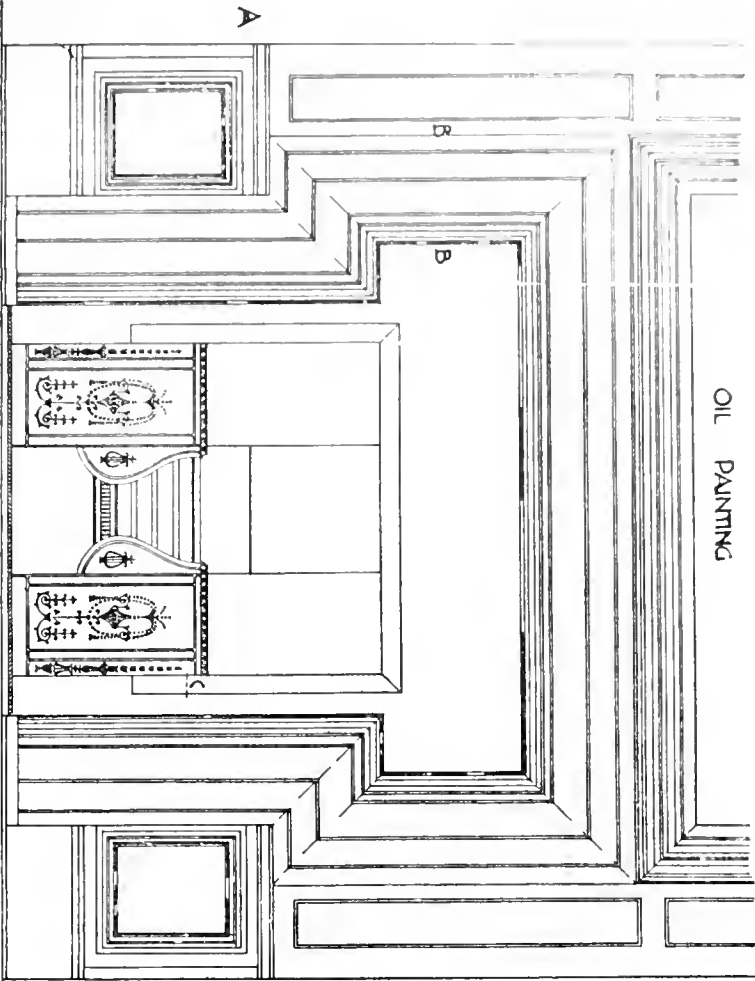


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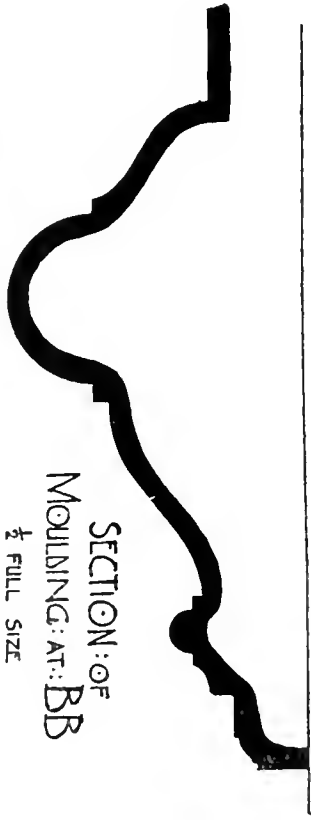
Measured & Drawn 1914  
 George William Wightman



OIL PAINTING

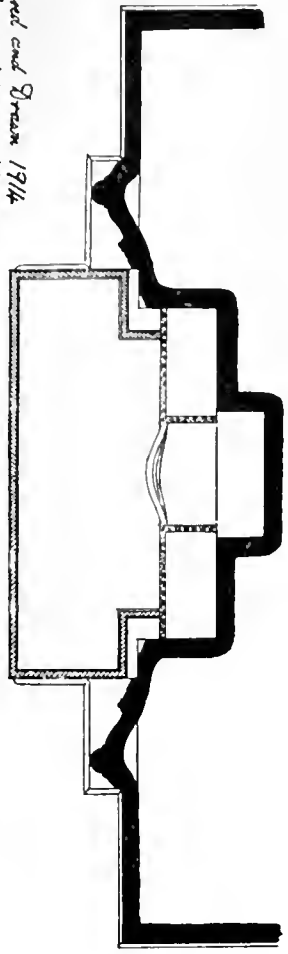


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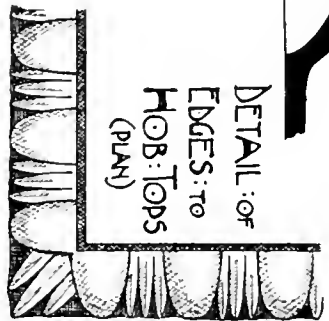
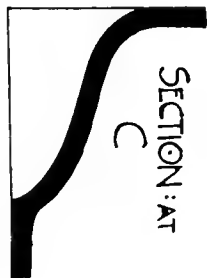
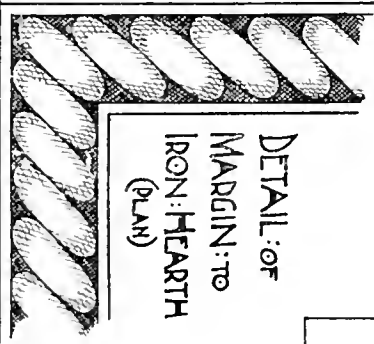
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ELEVATION



Measured and Drawn 1914  
George William Updegraff

PLAN: AT: AA



## Our Illustrations.

### PEABODY DONATION FUND: CAMBERWELL GREEN ESTATE.

This addition of six blocks is proposed to be made to the existing estate on land which has been purchased adjoining same and facing the Camberwell Green. The dwellings will be five stories in height. The elevations will harmonise with the existing ones, and be built of red sand-faced bricks with the main features in, Crowborough bricks. Artificial stone will be used for the stone cornices, sills, and doorways. The gates and railings are of wrought iron. Coal stores are proposed where tenants can obtain coal from the fund at a low rate all the year round. The charge of 1d. per week will be made for the use of the perambulator sheds and bicycle sheds. All staircases and w.c.'s will have the walls tiled. Each living room will have a dresser and ventilated meat larder and cupboard as a combined fitting, and all bedrooms have a wardrobe cupboard. (The one-roomed tenements will be provided with both these fittings.) Hanging space will be provided, in addition to a recess in the entrance lobby. In each scullery there will be a deep white-glazed fireday sink with teak draining board, coal-bunker to take 3 cwt. of coal, portable washing copper, and gas-cooking stove. The living rooms are to have the latest pattern portable ranges and hot-water supply to scullery sink. The buildings are to be of fire-resisting construction throughout. The lighting will be by gas supplied to the tenants through slot meters. Gas will also be used for the courtyard lighting. The buildings have been designed by Mr. Victor Wilkins, surveyor to the Peabody Donation Fund.

### DUBLIN HOUSING SCHEMES.

Our illustration gives a general view of the Church Street and Beresford Street Housing Scheme, now in course of erection on the north side of Dublin. This is only one of the many schemes taken in hand by the Housing Committee of the Dublin Corporation, and it promises to be one of the best of the series. In 1912, a report of the Housing Committee, with reference to this area, was adopted by the City Council, in which it was suggested that nearly four acres be acquired in this slum district, and that an expenditure of about £40,000 be incurred in acquisition and rebuilding 146 cottages of three types. All the land had to be acquired compulsorily, and the entire site was cleared from Mary's Lane on the south side to Stirrup Lane on the north, and from Church Street in a westerly direction to Beresford Street on the east. On the Church Street frontage, the old street has been increased to a width of 50 ft., and all the other main frontages are also set back considerably, which will constitute a great improvement in a district of Dublin, noted for narrow winding streets and where the traffic from the adjoining corporation markets is considerable. The building scheme is due for completion at the end of the present year and is in the hands of Messrs. Alex. Fraser and Co., who started on the site in August, 1915. An open space, screened from the principal street by a fenced shrubbery, near the centre of the area, will be fitted as a playground for children, and will also serve as an open space in front of the Franciscan Church in Church Street. All the work has been designed by and is under the supervision of Mr. Charles J. MacCarthy, F.R.I.B.A., city architect of Dublin.

### LONGSTOWE HALL, CAMBS: DOOR WAY FROM TERRACE TO STABLES

A general view of this Cambridgeshire mansion was given in the BUILDING NEWS for February 23 this year, showing the north entrance front and west drawing-room windows. A general description of the work, which was very extensive, appeared in the text. Much of the undertaking consisted of remodelling and reconstruction, and a great part was done by local labour. To-day we give a pen-and-ink sketch of the terrace doorway leading to the stables, and it illustrates the care and taste displayed by its capital detail. Messrs. John W. Simpson, F.R.I.B.A., and Maxwell Ayrton, A.R.I.B.A., are the architects. We hope at an early

date to publish some photographs of some subsidiary buildings carried out by them on the same estate.

### THE NATIONAL LIBRARY OF WALES, ABERYSTWITH.

In continuation of our series of working drawings, following on from last week, we give to-day Mr. Sidney K. Greenslade's capital details of the council-room fireplaces placed at either end of that fine apartment, and an elevation is given on this double-page plate showing also the side treatment and mural panelling. The librarian's room fireplace is similar to that in the president's room, and the doorways of both apartments correspond. The west side of the upper corridor is drawn out on the same sheet, with a plan of the wall dividing this corridor from the council room. The whole thing is worked out thoroughly, and the scale of the scheme is well preserved, being most carefully detailed in regard to the respective sizes of the various parts of the buildings here illustrated.

### TWO FIREPLACES, TUPTON HALL, DERBYSIRE.

These sheets of measured drawings, by Mr. George W. Wightman, of Chesterfield, show a pair of old Derbyshire fireplaces, one in the drawing-room, and one in a bedroom, both having the original hob grates. The details need no description beyond that given on the drawings. Tupton Hall is situated about half a mile from Clay Cross Station on the Midland main line.

Mr. A. H. Priest has been appointed road inspector to the Aldershot Urban District Council.

The late Mr. Henry Shellard, of Bath, Bath stone merchant, left personalty £10,930 and a gross sum of £22,336.

To enable the county surveyor to obtain the stone necessary for the maintenance and repair of the main roads in the northern division of the county, the Devon County Council have authorised the purchase of a portable tram track and three tram wagons.

Second-Lieut. Frank Douglas Sowerby, 4th Hussars, has been awarded the Cross of Chevalier of the Legion of Honour for distinguished conduct in action. Lieut. Sowerby was admitted as a Probationer of the Royal Institute of British Architects in 1905 and a Student in 1913.

At the meeting on Thursday, the City Corporation decided to grant an increase in the schedule price, ranging from 15 to 10 per cent., to the various paving companies who hold contracts from the Court for twelve months from the present time, in view of the increased cost of labour and materials.

Mr. J. C. Haller, the county surveyor of Nottinghamshire, has been requested by the War Office to construct new roads at the Clipstone military camp, at a cost of £3,000. Mr. Haller has asked the Southwell Rural District Council to allow their surveyor, Mr. A. Edwards, to supervise the work for him.

In the unavoidable absence of Viscount French of Ypres, who was snowed up in Nottingham, the great extension of the Second Northern General Hospital in Beckett's Park, Leeds, was opened by Major-General Lawson on Wednesday. The extension provides 862 additional beds and also a kitchen to serve the whole hospital, and has cost over £25,000 for building and another £10,000 for equipment.

At Friday's meeting of the Metropolitan Water Board the Finance Committee reported that the actual deficiency for the past year was £218,545, equal to a rate of 1d. in the £, and £69,188 more than had been estimated. The estimated deficiency for the ensuing year was £293,960. The average pre-war deficiency was £48,000, and the increase has been due chiefly to the rise in the price of coal and labour.

The death is announced of Mr. Joseph Middlemiss at Victoria, B.C. Deceased, who was born at Morpeth, served his apprenticeship as a builder with his late father, Mr. T. W. Middlemiss, borough surveyor. For a while Mr. J. Middlemiss was engaged with Messrs. J. and W. Lowry, builders, Newcastle-on-Tyne, and afterwards commenced business on his own account in that city. He emigrated to Canada five years ago. Two months ago he enlisted in the Canadian Expeditionary Force, but developed pneumonia and died after a week's illness.

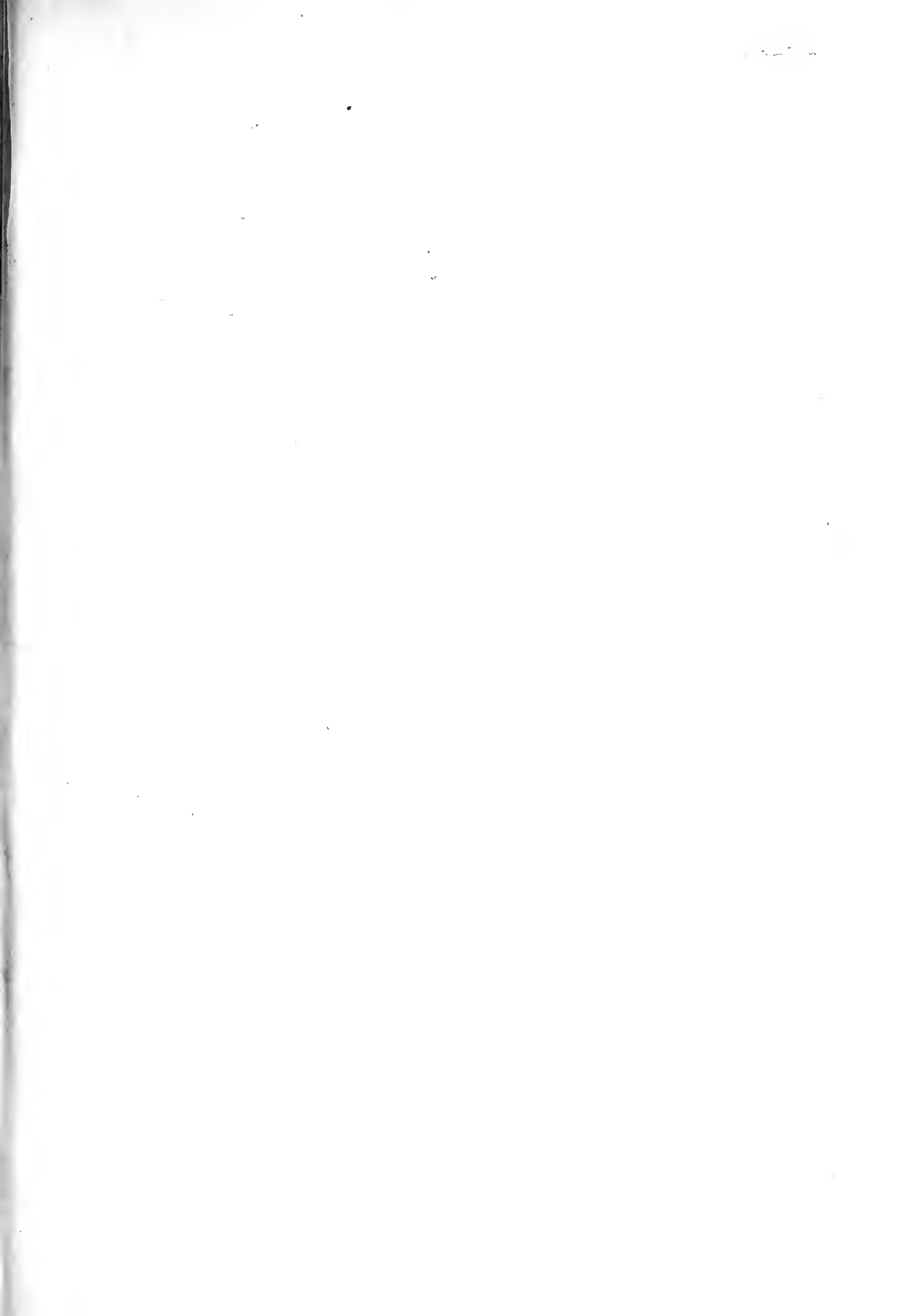
### OBITUARY.

Mr. Charles Hadfield, F.R.I.B.A., of the firm of Messrs. Hadfield and Son, St. James's Street, Sheffield, died on the 22nd ult. at Park Cottage, Norfolk Row, in that city, aged 75 years. He was a son of the late Matthew Ellison Hadfield, of Sheffield, was educated at St. Cuthbert's College, Ushaw, and, having served his articles with the late J. G. Weightman and the late George Goldie, commenced practice in his native city in 1864 with the late E. Hadfield. Much of his work was executed in the Perpendicular and Tudor phases of Gothic. His later works include the Corn Exchange, the King's Head Hotel, the Royal Hospital, and many Roman Catholic schools in Sheffield, the Roman Catholic Churches of St. Ignatius, Preston, St. James, Bootle, and St. Mary, Wombwell, the Great Northern Hotel at Leeds, and the reconstruction of Thorabridge Hall, Bakewell. He served as President of the Sheffield Society of Architects and Surveyors and as a member of the R.I.B.A. Council. For nine years past he had been in partnership with his son, Mr. C. M. E. Hadfield.

Mr. Henry Louis Florence, F.R.I.B.A., retired Lieut.-Col. Volunteers, of Prince's Gate, Hyde Park, and Royal Crescent, Bath, who died at his Bath residence on February 17, aged seventy-two years, left estate of the gross value of £301,633 7s. 5d., the net personalty amounting to £168,645 0s. 6d. The testator bequeathed £10,000 each to the National Gallery, Charing Cross Hospital, and St. Bartholomew's Hospital, £3,000 to the Haberdashers Company, £1,000 to the British Museum, and like amounts of £1,000 each to nine other hospitals in London. He further left £1,000 to the Architectural Association (of which he was President in 1879-80), and also a further sum of £1,000 to found or endow an annual prize associated with his name, and all his architectural and artistic books and collections of photographs. He bequeathed the marble "Maternite," by Dalon, the pictures "Greenwich Hospital," by James Holland; "Deauville," by Eugene Boudin, "The Mousetrapp," by P. Van der Werff; and any others of his collection that may be selected by the Trustees, to the National Gallery. (It is stated that they have selected sixteen other pictures for the Trafalgar Square collection.) The remainder of his pictures, bronzes, enamels, furniture, and articles of art and virtue he bequeathed to the Victoria and Albert Museum, or to the Corporation of the City of London should the Museum be unable to accept them: an oil painting "Fox and Poultry," by Snyders, to Dulwich College; a number of legacies; and the residue in trust for his brother for life, and then as to one-half to the National Gallery, Charing Cross Hospital, St. Bartholomew's Hospital, and the British Museum, in the same proportion as their respective legacies, and the other half in trust for Harry Thiel Elster Vanderpant for life, with remainder on the like trusts as of the former half.

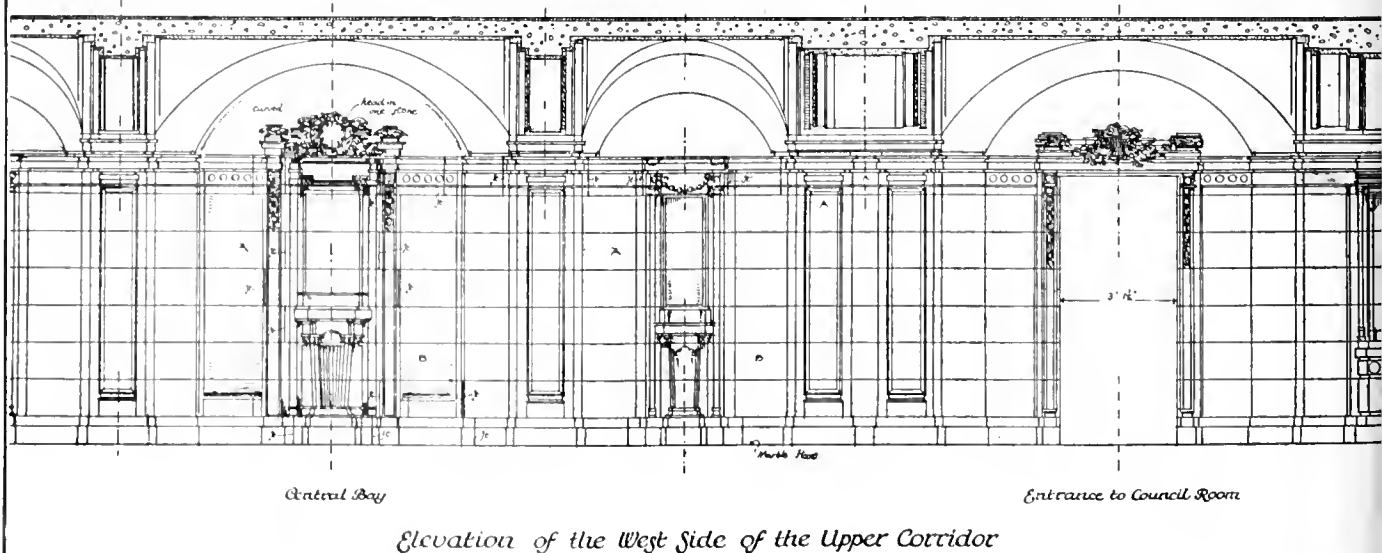
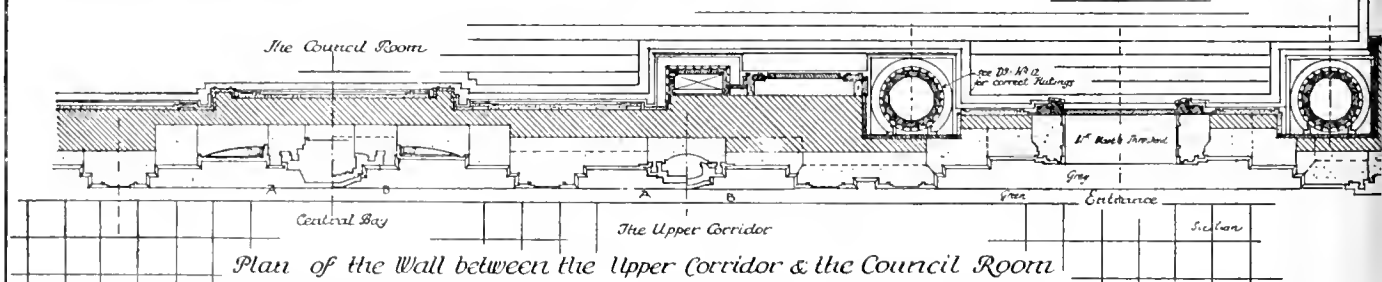
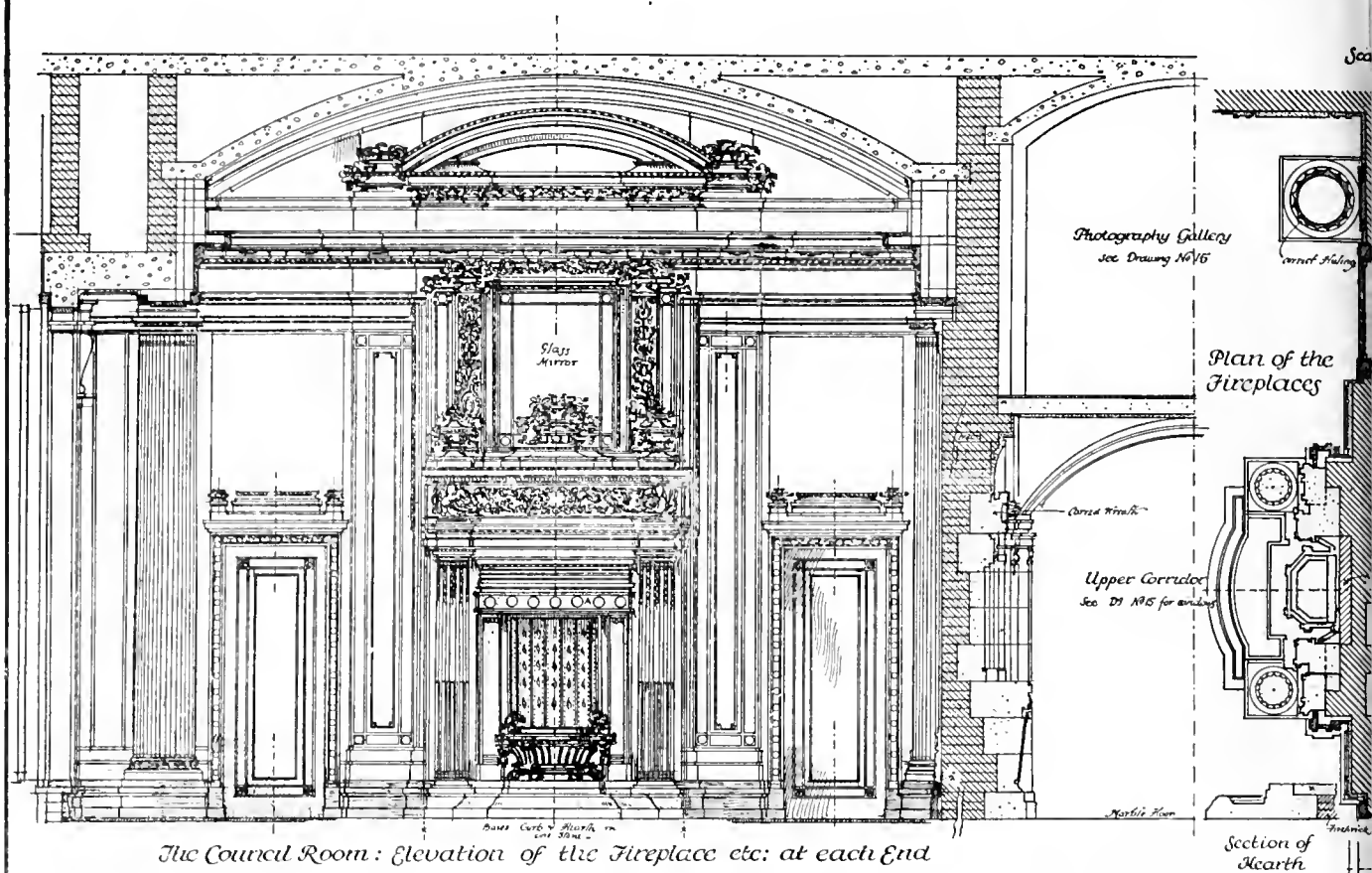
Second Lieutenant Ronald Edward Wilson, Bombay Volunteer Rifles, who was killed on March 11, was the elder son of Mr. and Mrs. S. R. Wilson, of Reading. He was educated at Heath Grammar School, Halifax, and King William's College, Isle of Man, whence he gained a scholarship for mathematics at Corpus Christi College, Cambridge. He took honours in the Mechanical Sciences Tripos, and trained as a civil engineer, becoming an assistant engineer under the Bombay Port Trust in 1912. He held this post when the war broke out. In September, 1914, he joined the Bombay Volunteer Rifles as a private, and gained his commission last December.

Sergeant Louis Augustus Phillips, A.R.I.B.A., Public Schools and Universities Bn., Royal Fusiliers, was killed in action in France on March 14. Sergeant Phillips, it is stated in the R.I.B.A. Journal, served his articles with Messrs. Habershon and Fawcener, architects, of Newport and Cardiff, and was afterwards assistant to Mr. John F. Groves, F.R.I.B.A., architect to the Tredegar Estate, Newport, Mon. He was elected Associate and started practice in 1907. He was a fine all-round athlete and a good Rugby football international player.



*The National Library of Wales, Aberystwyth.*

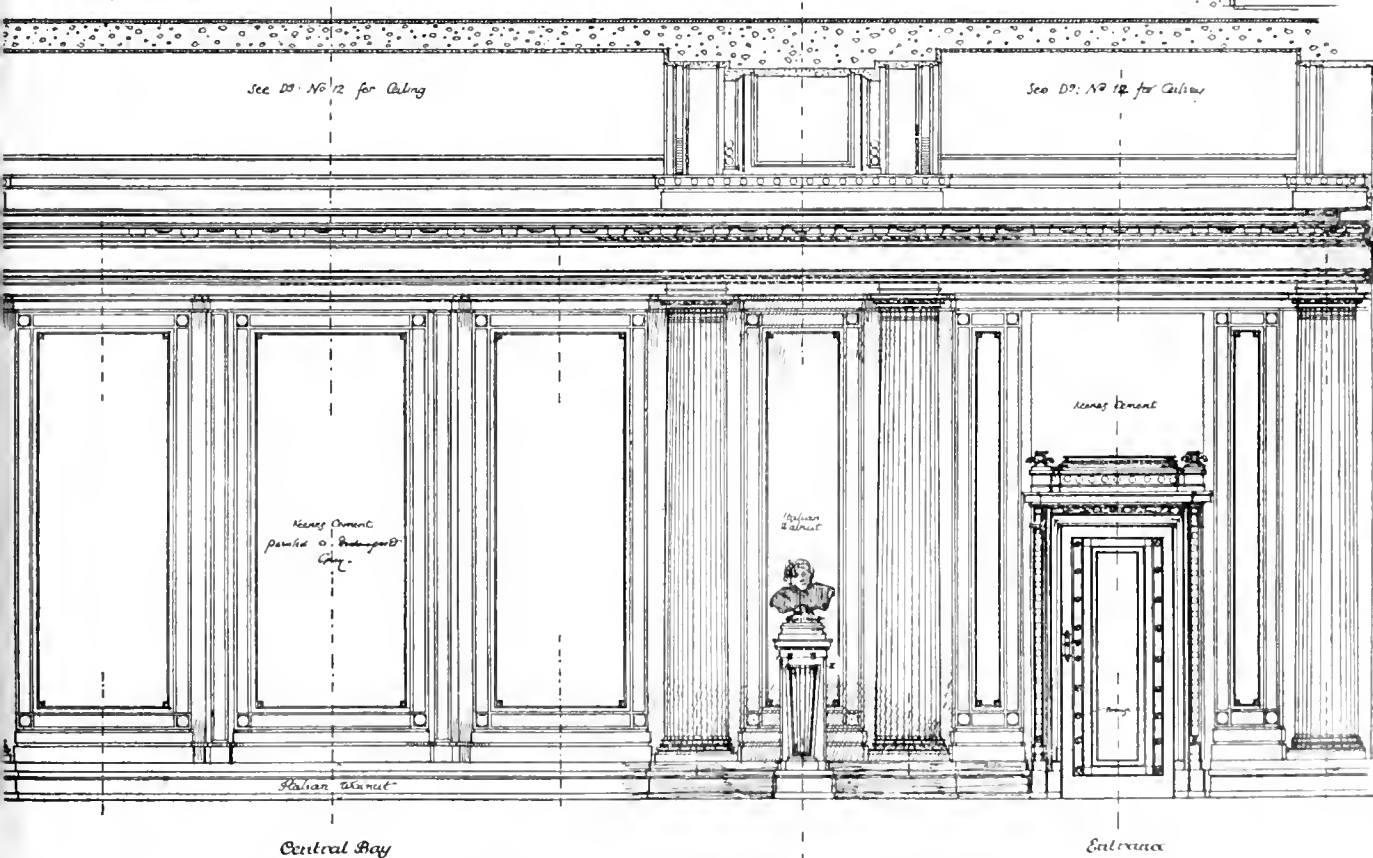
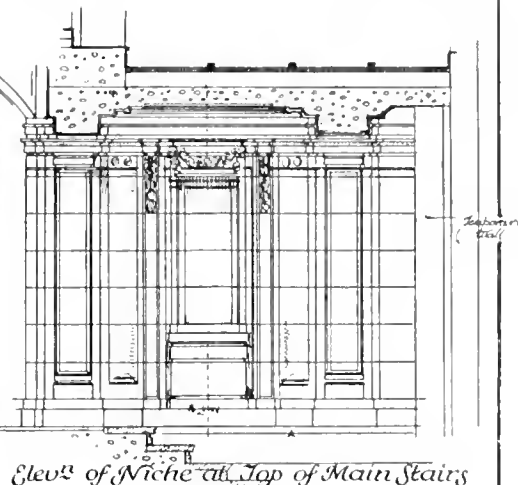
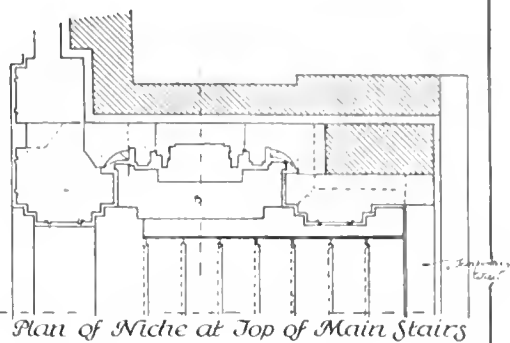
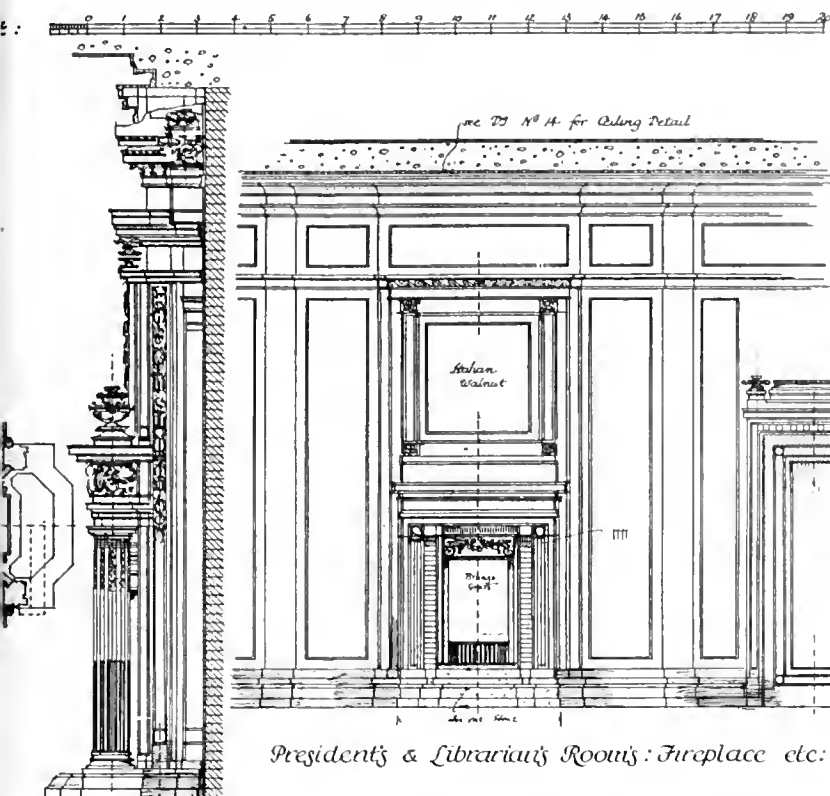
Detail



Upper Corridor, Council R'm & President's & Librarian's R'ns

NO: 18

See also Drawings Nos 12, 14 & 15



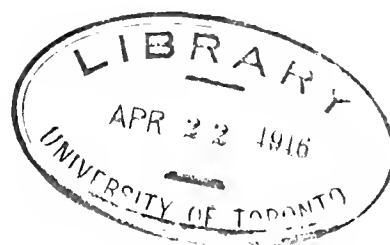
Elevation of the East Side of the Council Room

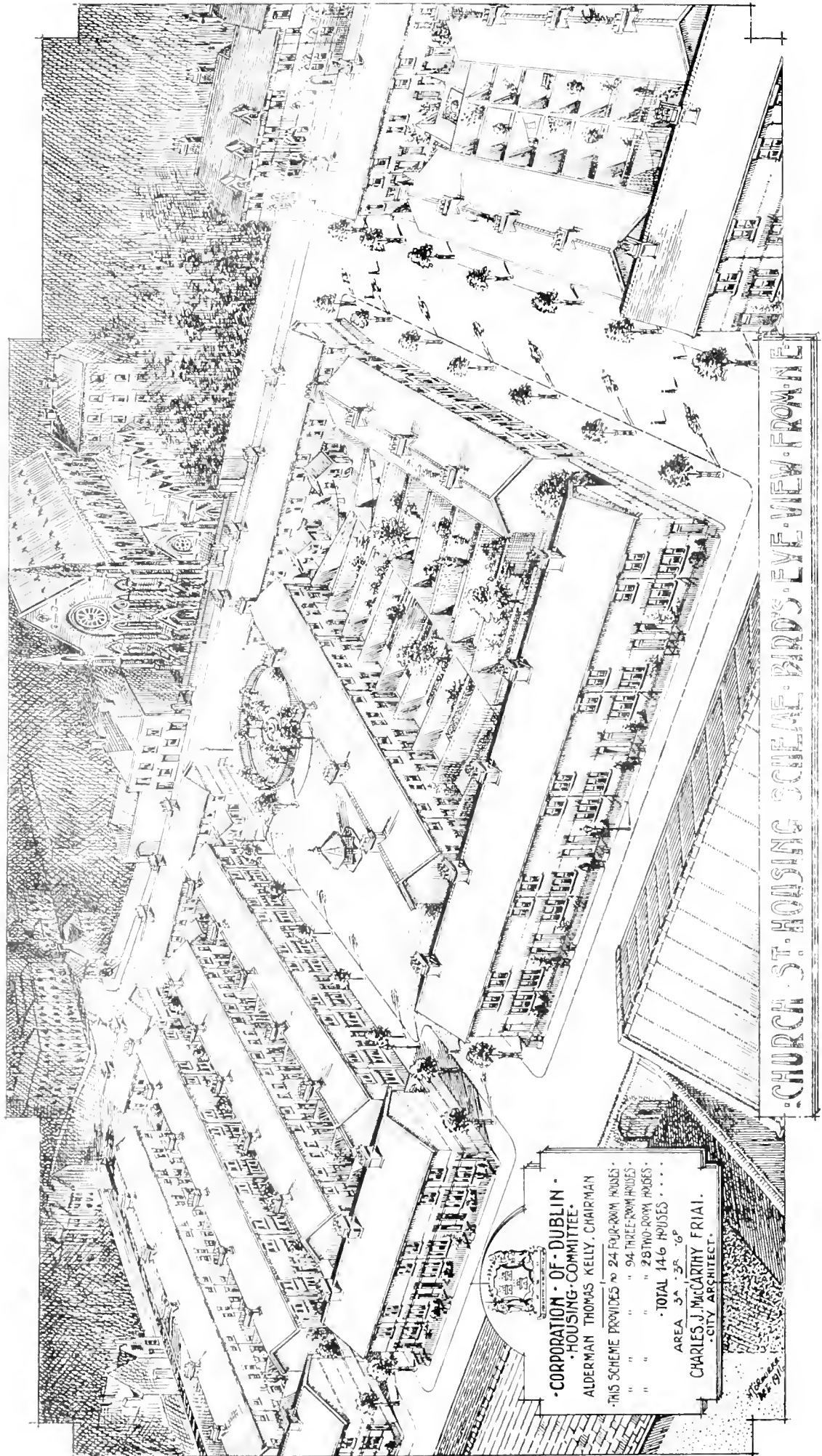


Sidney K. Greenslade, Architect  
11 Long Inn Square, E.C.









CHURCH ST. HOUSING SCHEME. BIRD'S EYE VIEW FROM N.E.

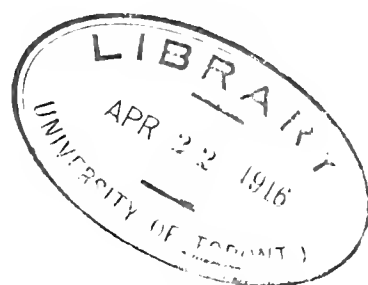
CORPORATION OF DUBLIN  
 HOUSING COMMITTEE.  
 ALDERMAN THOMAS KELLY, CHAIRMAN  
 THIS SCHEME PROVIDES FOR 24 FOUR-ROOM HOUSES.  
 " " " 94 THREE-ROOM HOUSES.  
 " " " 28 TWO-ROOM HOUSES.  
 TOTAL 146 HOUSES . . . .  
 AREA 3A. 5R. 6P.  
 CHARLES J. MCCARTHY, F.R.I.A.  
 CITY ARCHITECT.

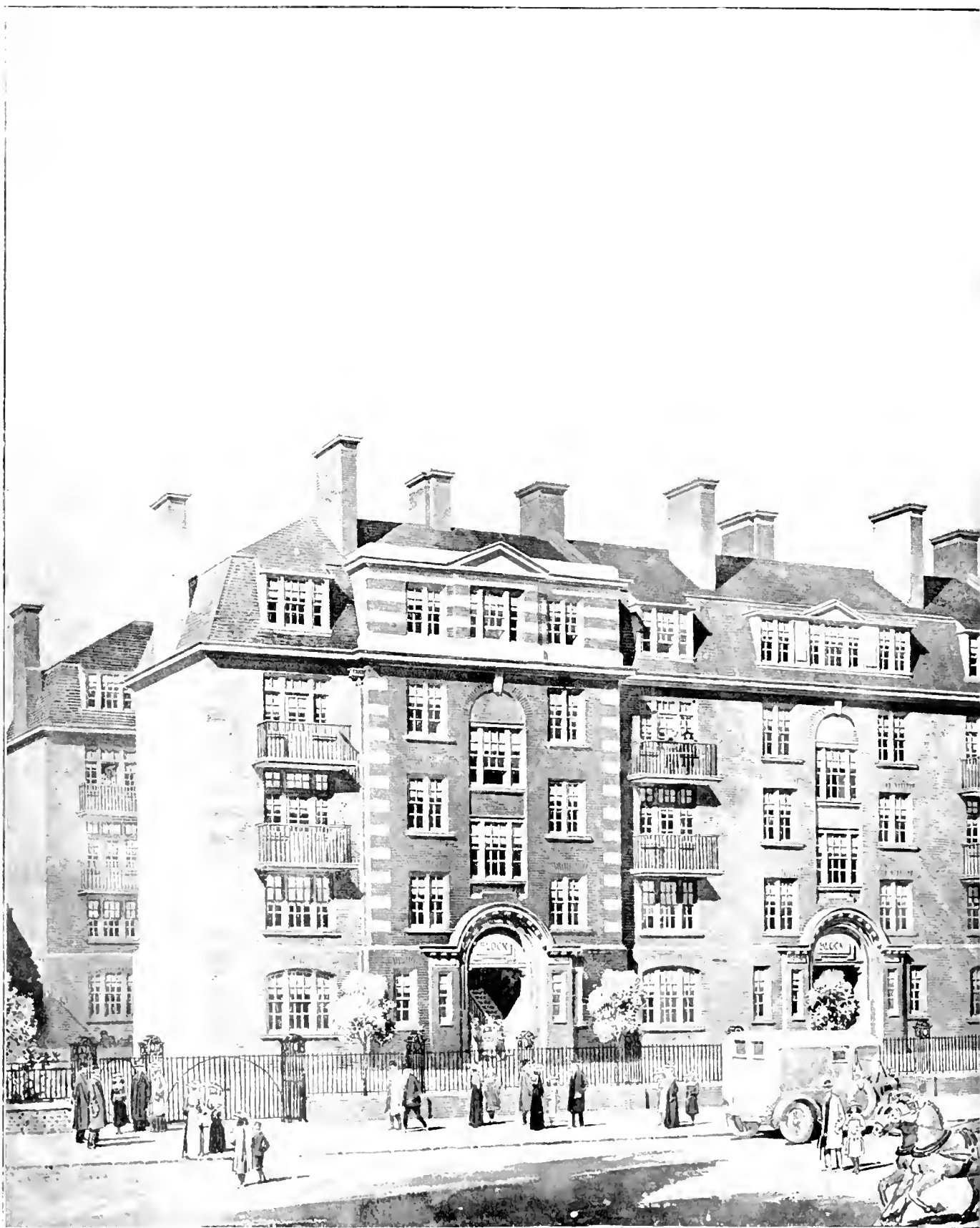


LONGSTOWE HALL, CAMBRIDGESHIRE: DOORWAY FROM TERRACE TO STABLES.

Messrs. JOHN W. SIMPSON, F.R.I.B.A., and MAXWELL AYTON, A.R.I.B.A., Architects.



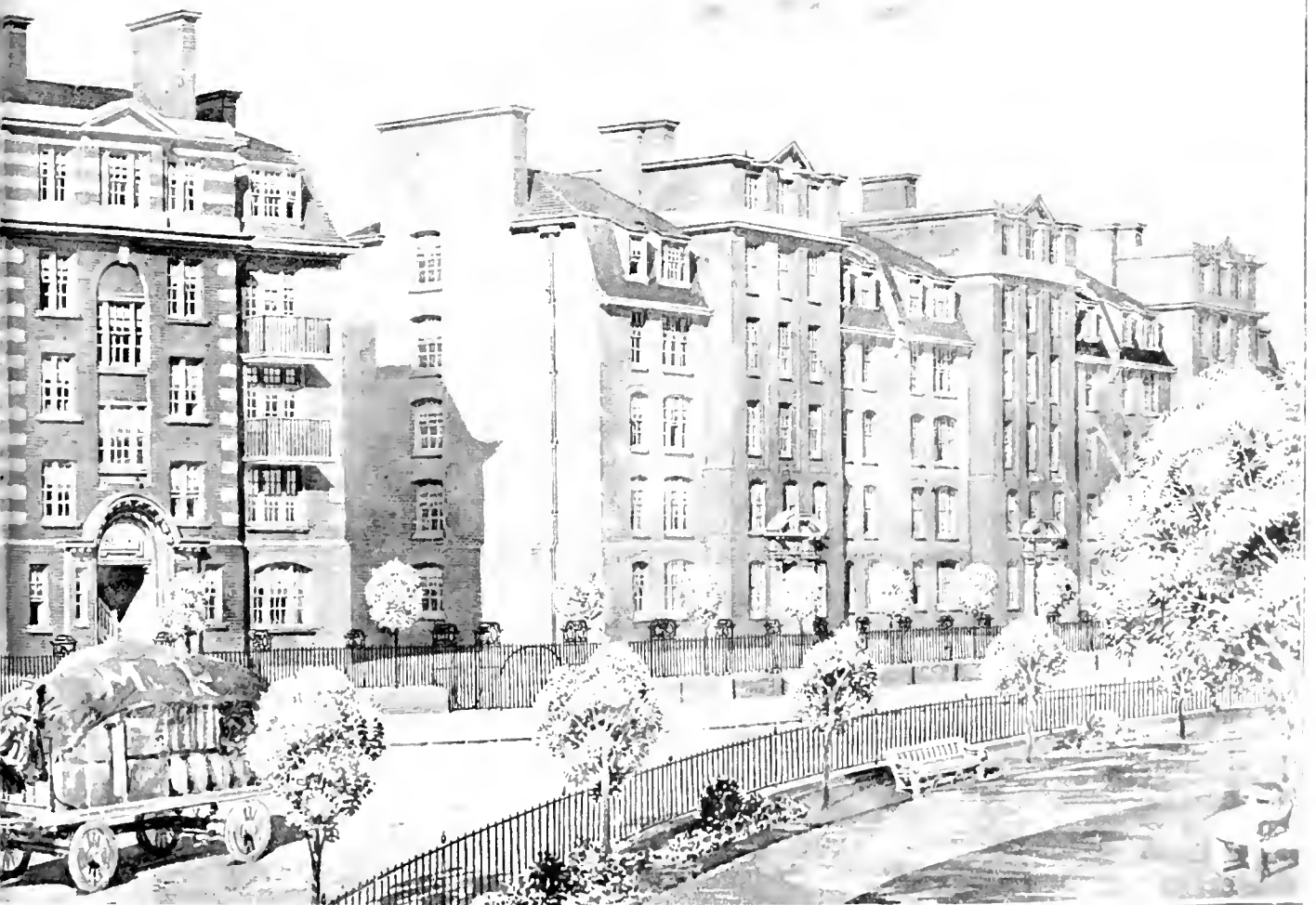






APRIL 5, 1916.

PEARODY · DONATION · FUND  
· EXTENSION · OF ·  
· CAMBERWELL · GREEN · ESTATE  
VICTOR WILKINS, ARCHITECT.





## Correspondence.

### FORM IV.: IMPORTANT TEST CASE.

To the Editor of THE BUILDING NEWS.

SIR.—The judgment of the Final Court of Appeal in the case of the Attorney-General v. Foran, delivered on March 27, proves that ever since the valuation under the Finance (1909-10) Act, 1910, was started the Commissioners of Inland Revenue have misused their administrative powers.

It is only necessary to give a few quotations from the judgments:—

Lord Atkinson: "But to this statutory estoppel shutting out the truth and working possible injustice are the Commissioners so devoted that they refuse to be bound by the Court of Appeal, and bring the respondents before this House in the effort to sustain a proceeding which, even if it were technically within the letter of the law, has no merits to support it."

"The Commissioners thus insisted that a return should be made as required, under a penalty of £50, and now have the coolness to contend that the respondents, acting thus under compulsion, had, by sending in a return, waived all objection to the notice by reason of defects in it of which they had then no positive knowledge or even authentic notice. A more unsound contention could not well be urged, and, having regard to the refusal of the request for further time, a more unmeritorious one. Fortunately, it is not often that one finds public departments adopting such a course."

Lord Wrenbury: "I regret that a form issued by a Government Department with a view to enforcing liability under a taxing statute should assume a shape which I should not be surprised to find in a prospectus issued by a company promoter, but which is not worthy of the source from which this document comes."

Incredible as it may seem, attempts by the Commissioners to extort revenue without legal warrant by means of tricks or threats of litigation are only too numerous, and characteristic of the administration of the land taxes and valuation from their inception.

Surely the Government can now have no alternative but to instruct the Commissioners of Inland Revenue that such practices as those annunciated on in the judgment quoted above should at once cease.—Yours obediently,

DESBOROUGH.

St. Stephen's House, Westminster,  
London, S.W.

March 31, 1916.

The death is announced of Mr. W. N. Wood, for many years district surveyor to the Titchhurst Rural District Council.

At the Glasgow Dean of Guild Court on Thursday a license was granted to the Clyde Structural Iron Co., Limited, Clyde-side Iron Works, Scotstoun, to erect buildings in South Street, Scotstoun.

The Sheffield City Corporation are building 261 houses for munition workers at a cost of £86,500. The Ministry of Munitions will provide 10 per cent. of the cost, and the Government will advance the balance to the corporation at a rate of  $\frac{1}{2}$  per cent.

The Queen will open the new Chelsea Hospital for Women on Tuesday, July 11. The hospital is being built on a site in Arthur Street, Chelsea, given by the late Earl Cadogan, and valued at £30,000, the architects being Mr. Keith D. Young and Mr. Alner W. Hall, of Southampton Street, Bloomsbury. We illustrated the new building in our issue of October 13, 1913.

Boness Town Council recently made application to the Secretary for Scotland for powers to borrow £14,500 to carry out a proposed extension of the Boness electricity works. Since lodging this application, the deputy town clerk endeavoured, but unsuccessfully, to obtain a loan of the required amount from various banks and insurance companies. The town council have therefore unanimously resolved to apply to the Public Works Loan Board for a loan for thirty years, alternatively for twenty years, for the execution of the work, which is regarded as urgent.

## LEGAL INTELLIGENCE.

**APPEAL DISMISSED IN ACTION AS TO THEATRE REBUILDING.** In the Court of Appeal judgment was given by the Lord Chief Justice, Lord Justice Warrington, and Mr. Justice Scrutton in the case of George Sands and Son, Limited, of Colwick, near Nottingham, v. the Manchester Palace of Varieties, Limited. This was an appeal by the defendants against a judgment given by Mr. Justice Rowlatt in favour of the plaintiffs for £514, as the balance due under a £6,000 contract for the internal reconstruction of the theatre. Mr. W. H. Redgate, of Nottingham, appeared for the plaintiffs. Mr. Parfitt, K.C., argued for the respondents that the decision of the Court below was correct. He went at length into the question whether there was any agreement by the surveyor to extend the date at which the building should be ready to receive the steelwork which was necessary for the contract. The Lord Chief Justice, in giving judgment, said the only question to be decided was what was the agreement which was arrived at long after the contract had been made between the parties as representing the date from which the plaintiffs' work was to commence. By the contract the materials were to be ready for despatch from the works on May 26, 1913, and lifting was to commence on June 24. By the agreement the date of commencement was put off till August 20. The question was, did that mean that the whole of the work from May 26 was to commence from August 20, or only that the lifting was to begin on that date in lieu of June 24? Mr. Justice Rowlatt decided that the extension granted was from May 26, and he (the Lord Chief Justice) thought there was evidence on which the learned judge could so decide, and therefore there was no ground to disturb his decision. Lord Justice Warrington and Mr. Justice Scrutton agreed, and the appeal was therefore dismissed, with costs.

## TRADE MOVEMENTS.

**BURTON-ON-TRENT.**—Applications for an advance were recently received from the employees in various branches of the building trade at Burton-on-Trent, owing to the increased cost of living, and after several meetings between the employers and the operatives it was agreed on Monday that wages be advanced by a halfpenny per hour to all branches. The advance is to come into operation on May 1, and to continue until three months after the date on which peace is signed.

**OPERATIVE BUILDERS' CLAIM.**—The London Master Builders' Association met representatives of the Operative Builders' Society on Thursday regarding the men's demand for an advance of 2d. an hour. The employers could not see their way to grant the increase, and the question will be referred to arbitration. The other sections of the building workers will meet the employers later regarding a similar claim.

**STONEMASONS AND PLASTERERS.**—The London Master Builders' Association met representatives of the Stonemasons' and Plasterers' Trade Unions in conference at Kohat-Noor House, Kingway, W.C., on Monday, on the demand put forward by workers in the building trade for an all-round wage advance of 2d. per hour and a new schedule of working conditions. No agreement was reached, and the claim, with a similar one by other grades in the industry, will, it is understood, be submitted to the Conciliation Board.

Mr. Arthur Hughes, the last of the pre-Raphaelite painters, of East Side House, Kew Green, who died on December 22, aged eighty-three years, left £6,057.

Mr. G. Richards, engineer-in-chief, Indo-Burma connection railway survey, has been appointed engineer-in-chief of the Mysore and West Coast railway surveys.

The Bill to authorise the sale of St. John's Church, Hull, and to apply the proceeds to the provision of a new church in the large Hull parish of Drypool, has passed the Select Committee, and will be reported for third reading in the House of Commons in due course.

Captain William Robertson Houston, Royal Scots Fusiliers, son of Mr. John Houston, architect, Dunfermline, has died from the effects of a shell wound received in action. He was attending the Edinburgh University Arts classes at the outbreak of the war, and was a member of the Officers' Training Corps. He was 22 years of age.

## Building Intelligence.

**MOUNTSTREET.** The architect, the Local Government Board for Ireland, Mr. K. G. has submitted a report on the progress of the housing scheme of the Mountstreet Urban District Council. He states that of the 156 cottages authorised, 57 have been completed, 58 are in progress, six are not commenced, and 35 have been deferred till after the war. The plans and specifications have been considered, excellent workmanship and materials have been employed, and during the eight months which have elapsed since the last inspection, new work value for over £6,650 has been carried out; the condition of the works and the rate of progress made are, in his opinion, very creditable to all concerned. Owing to the present great difficulty in procuring ironwork, a number of cottages, otherwise complete and ready for occupation, are without corrugated iron roofing to offices, and iron entrance gates.

**NEWCASTLE-ON-TYNE.** The recently extended premises of the Y.W.C.A. in Saville Row, Newcastle, were formally opened on Wednesday afternoon. The enlarged and remodelled buildings have two entrances from Saville Row, one being for the use of resident members of the Association and the other for ordinary members and for access to the meeting-hall. The extension to the west has an open stone entrance porch, with inner vestibule, from which there is a side entrance to a new lounge 36 ft. by 20 ft. There is also an entrance from the vestibule to a corridor leading to the new Kinnaird Hall 56 ft. by 29 ft. 6 in., situated at the rear. There is a new supper room 20 ft. by 14 ft., and a dining room 29 ft. by 18 ft. In connection with the corridor and dining-room a kitchen, 12 ft. by 9 ft. 6 in., has been provided, with a serving hatchway to the lounge and supper-room. The new kitchen, 21 ft. 6 in. by 15 ft., has an attached scullery, 18 ft. by 12 ft., at the rear of the present restaurant. Larders, stores, housemaid's pantry, and lavatories, etc., locker store, and gentlemen's lavatory are provided on the ground floor. Four new rooms (for secretaries and classrooms) have been built on the first floor. Forty-four new bedrooms have been provided on first, second, and third floors. Five additional bathrooms are provided in connection with bedrooms; also ironing and linen rooms, stores, lavatory, and housemaid's sink accommodation. Mr. A. B. Plummer, F.R.I.B.A., of Newcastle, is the architect, and Mr. Stanley Miller was the builder.

**LITTLE TRINITY LANE, E.C.**—The hall of the Painters-Stainers' Company, in Little Trinity Lane, Cannon Street, E.C., which was rebuilt soon after the Great Fire, was formally reopened by the Lord Mayor and Sheriffs on Tuesday after renovation and extension, carried out from plans by Mr. H. D. Searles-Wood, F.R.I.B.A. Mr. J. D. Grace, F.S.A., Father of the Company, pointed out that although the Hall had been renovated, all the leading and notable seventeenth-century features of the building had been piously preserved. The original Hall was given to the Company by Sir John Brown in 1531, but the Guild was in existence long before that date. It was in Painters' Hall that the meetings were held of the Commission for Soldiers and Sailors wounded in the War and Prisoners of War, presided over by John Evelyn, the famous seventeenth-century diarist. Among great men connected with the Guild were Robert Lovelace, Sir Peter Lely, Sir John Rylands, and, still living, Sir E. J. Poynter, P.R.A., and Sir James Lyster, P.R.I. Formerly the Guild had the privilege of seeing bad pictures and destroying them. That regulation had fallen into disuse. A special ancient privilege was to provide medicinal arms in time of war.

The construction of the Flood Pump station of the East End of Railway has been practically completed, and the linking with the parent and the North Western of India railways is desired.

## PARLIAMENTARY NOTES.

**EXPENDITURE ON LAND VALUATION.**—Lord Oranmore and Browne asked the Government whether the land valuation imposed by Part I. of the Finance Act, 1909-10, could not be postponed till the conclusion of the war without prejudicing its resumption when peace was restored, with a view to effecting economies in the Land Valuation Department, and in order that officials of the Department might be free to undertake national work of urgent importance at the present time. The total cost of land valuation up to March, 1915, was £2,928,397, and the receipts were £689,068. For the current year it was estimated that the Department would cost £676,000. It was quite evident, taking into consideration the concessions which had been made, that the taxes would not begin to accrue until the end of the war, so that to expend over £600,000 a year in keeping up the Department was a waste of money.—The Earl of Meath asked how many men of fighting age were engaged in the Land Valuation Department, and whether they could not be replaced by men over forty-one years of age. He was informed that the Valuation Department had discouraged enlistment, and had issued a circular stating that the Government would not promise reinstatement after the war to those who joined the Services.—Lord Hylton replied that the Land Valuation Department employed at present 580 permanent officials, with established rights. The majority of these gentlemen were highly qualified valuers, and the valuation staff was now mainly employed in overtaking the arrears of cases connected with the duties payable on sales or death duties. The temporary staff had been reduced to a minimum. During the present financial year the number of the temporary staff whose employment had terminated was 2,688, and the number permanently and temporarily employed at present was 1,941, of whom 946 were on naval or military service. The cost of salaries was £272,000, including £24,000 as civil pay to men serving with the Forces. The permanent staff of 580 included 349 men of military age, but 115 were already serving with the Forces or had been allowed to take commissions or to enlist. He had no information with regard to the issue of a circular regarding recruiting, but he hoped it was not the case.—Viscount Mutton explained that when the Retrenchment Committee came to examine into the Land Valuation Department they were advised that if they were to report upon the Department they would be raising class issues of a very serious description, and therefore he infringing the non-contentious limitation which they had been strictly desired to observe. The staff of the Land Valuation Department had cost £3,250,000, and the revenue produced was £751,000. During the last year there were 377 permanent and 3,335 temporary valuers. But, as the valuation had been practically completed, about two-thirds of the temporary valuers had been got rid of. At the very time the House was debating the subject of economy, no fewer than 203 of the temporary valuers were made permanent, as far as he could judge without a shadow of justification.—Lord Parmoor contended that valuations carried out at a time when the State was paying 5 per cent. for money would be wholly useless in future. It was ludicrous to suggest that a valuation made in the present war period could be accepted.—The Marquess of Crowe deprecated raising the sleeping party-dog. He could not agree that a comparison of the amount expended on the valuation and the revenue produced within a given number of years was a fair one. A very large part of the outlay ought to be regarded as capital expenditure. The people who favoured land valuation felt that the debate was not inspired by a desire for economy or for recruits, but by a desire to drive a wedge into the principle of valuing land for the purpose of taxation.

**UNDEVELOPED LAND DUTY.**—In answer to a question by Mr. King as to assessments to undeveloped land duty, Mr. Montagu gives the following details in Parliamentary papers:

Year.	Assessments.	Duty Assessed.	Duty Paid.
1909-10	135,777	131,385	60,603
1910-11	175,264	179,862	73,948
1911-12	173,933	207,676	93,402
1912-13	164,856	224,379	103,012
1913-14	125,527	147,170	78,775

The answer adds: In consequence of a judicial decision affecting the principles of valuation of land liable to undeveloped land duty, the assessment and collection of this duty has been suspended as from the end of February,

1914. Legislation confirming the basis of valuation adopted by the Commissioners of Inland Revenue was proposed in the Revenue Bill, 1914, which was postponed in consequence of the outbreak of war.

**MR. MEYER'S REMUNERATION.**—On the Vote for the Office of Works, Sir H. Dalziel said, as Mr. Meyer, who purchased timber for the Government, was still "going strong," he should like to know how much he had been paid in salary and commission up to the present time.—Mr. Harcourt said, on making inquiries in the timber trade with respect to Mr. Meyer, he was told by everybody that there was no man in the country who could buy timber better than, or even as well as, he. The original agreement was that he should be paid 2½ per cent. on all his purchases, but subsequently the amount was altered to 2½ per cent. on purchases up to £600,000 and 1½ per cent. on purchases over that amount. The present arrangement was that his remuneration should not be less than £4,000 or more than £12,000, whatever his services might be, and of that £12,000, £6,000 would go in office expenses. In the last ten months he had bought timber for the Government worth £2,500,000, and even at 1½ per cent. he would have been entitled to £37,500, but, as a matter of fact, he got only £12,000.—Sir H. Dalziel said that if Mr. Meyer was not going to get £37,000 for buying timber, the credit was due to independent members of the House, who forced the Government to amend the contract.—Mr. Harcourt said he ought to have mentioned that Mr. Meyer had the advantage of Admiralty freights in a large number of cases, and this would account for part of the difference between the prices paid for timber by Mr. Meyer and the market price. The total commission paid to Mr. Meyer during the war up to date was £25,900, and the total value of the timber he purchased was £3,100,000.—The Vote was agreed to.

**RODIN'S "BURGHERS OF CALAIS."**—On the Vote of £34,600 for the Houses of Parliament Buildings being taken on Thursday night, Mr. Haslam called attention to the placing of Rodin's "Burghers of Calais" in the gardens next the Victoria Tower. The work, he said, which was one of the finest examples of pathetic human emotion ever expressed in statuary, was placed in such a position and at such a high elevation that it could not be properly seen. It had been placed in this position, he believed, against the wish of M. Rodin himself. The pedestal ought to have been only one-third the height it actually is.—Mr. Harcourt, First Commissioner of Works, replied that Rodin's "Burghers of Calais" was a gift to the nation from the National Arts Collection Fund—a very splendid and generous gift. It was difficult to select a position for it, and it was thought that the best thing to do was to invite M. Rodin himself to decide. Out of six or eight places M. Rodin selected the site in the new Victoria Tower Gardens, where the group now stands. To many people the pedestal did seem unduly high, but on that point also the advice was taken of M. Rodin himself, who said he modelled the group to be on a pedestal 16 ft. high, that he had experimented in his own studio with pedestals of various heights, and had come to the conclusion that a pedestal of the height and form used was the proper one.—The Vote was agreed to.

**ROYAL PARKS.**—On a Vote of £54,000 for Royal parks and other gardens, Mr. Whitehouse expressed the hope that the First Commissioner of Works would give an assurance that the buildings in St. James's Park and other parks would be removed as soon as possible after the war.—Mr. Harcourt said there was a clear and distinct understanding that the temporary buildings erected in the various parks would be removed immediately after the conclusion of the war.

**WESTMINSTER HALL RESTORATION.**—In reply to questions, Mr. Harcourt explained that only as much money was being spent on the roof of Westminster Hall as was absolutely necessary. The work could not be stopped altogether. To show how pressing it was that the work should be continued, he might mention that a great beam of the roof a little while ago broke the stone corbel on which it rested and had nothing to rest upon. Why it did not tumble down he did not know, unless it was that the whole building seemed to have got so infected with *vix inertia* that it held out sooner than fall down. It had been found that it would be necessary to re-slate the roof of the hall. The present slates were so soft that one could push his finger through them. He intended to try, by a mixture of slates, to produce the present mottled effect rather than have one uniform expanse of slating.—The Vote was agreed to.

## PROFESSIONAL AND TRADE SOCIETIES.

**NEW ZEALAND INSTITUTE OF ARCHITECTS.**—The annual report of the council of this institute, presented at the annual meeting, held on November 30 last, states that the membership has increased from 246 in 1914 to 315 in 1915. Twenty-seven members are serving with the forces. The council report that, realising the importance of ensuring that in future all architects admitted to the institute should be well educated, a great amount of consideration has been given to the question of an educational scheme, and of the examinations to which that scheme leads. As an examining body it has laid down a scheme of education, and has stated what examinations must be passed in order to qualify for membership. The work of encouraging and developing and carrying out the scheme has to be left in the hands of the various branches. The council express a hope that many students will be ambitious enough to work for the degree in architecture which has been formulated by the University of New Zealand. It is hoped also that one of the University Colleges of New Zealand will see its way in the near future to establish a Chair of Architecture. On the motion of Mr. Hurst Seager, of Canterbury, N.Z., it was resolved, "That the Prime Minister of the Dominion be requested that for the future all important public buildings be made open to public competition under conditions based upon the gazetted regulations of the institute." It was further resolved, on Mr. Seager's motion, "That it be regarded as the practice of the institute for architects to open all tenders, make a list thereof, and communicate them to the client before making the amounts known to the tenderers."

**NORTHERN ARCHITECTURAL ASSOCIATION.**—The annual meeting of the Northern Architectural Association was held on Wednesday afternoon at Higham Place, Newcastle-on-Tyne, Mr. C. S. Errington presiding. The annual report, which was adopted, showed that the members' roll contained the names of 192 members, associates, and students. Owing to the war, no outdoor meetings were held, and the usual lectures at the winter meetings were abandoned. As a result of the work of the local Architects' War Committee, 52 applicants had been interviewed, and in many cases appointments had resulted. The council was offering no prizes to students during the ensuing session, as so many of them were serving their country.

**POSTPONEMENT OF R.I.B.A. PRIZES AND STUDENTSHIPS, 1917.**—On the recommendation of the Board of Architectural Education, the Council of the Royal Institute have postponed the competitions for the R.I.B.A. prizes and studentships, 1917. Candidates who under the age limit were eligible in 1915 and 1916 will be considered eligible to take part in these competitions when they are next held.

**ROYAL TECHNICAL COLLEGE ARCHITECTURAL CRAFTSMEN'S SOCIETY, GLASGOW.**—At the business meeting of the above society held last week the following were elected office-bearers:—Honorary Presidents: T. L. Watson, I.A., architect; James Monroe, F.R.I.B.A., I.A., architect; Robert Robertson, B.Sc., M.Inst.C.E.; Charles Gourlay, B.Sc., A.R.I.B.A., F.S.A.Scot., professor of architecture; Robert Moon, wright. President: Peter Lyall, builder. Vice-Presidents: Thos. Whyte, F.F.S., P.A.S.I.; James Muir, plumber. Joint Secretaries: D. S. Pringle and Jas. Muir. Treasurer: Thomas Davis. Representative to the College Committee in Architecture: W. H. Baxter.

## TRADE NOTES.

The Langley Silk Mills, Macclesfield, are being supplied with Shorland's patent Exhaust Roof Ventilators by Messrs. E. H. Shorland and Brother, Limited, of Fairfield, Manchester.

Under the direction of Mr. G. T. Bassett, A.R.I.B.A., architect, Aberystwyth, Boyle's latest patent "Air-Pump" ventilators have been applied at the University College of Wales, Aberystwyth.

## Our Office Table.

The Ministry of Munitions announce that owing to the great shortage of certain types of building labour for the purposes of urgent Government work, building operations necessitating the employment of navvies, excavators, and builders labourers should not be started without consultation with the Ministry of Munitions. Inquiries on this matter should be addressed to the Building Labour Department, Ministry of Munitions, 6, Whitehall Gardens, S.W.

Sir Howard Frank writes to the *Times* suggesting that a committee should be appointed of men of all shades of opinion to consider the land question dispassionately, so as to enable the best use to be made of the land for protecting our food supply. He mentions among the subjects that should be examined into, the cultivation of lands hitherto neglected or used for sporting purposes; the improvement in the wage and position of the farm labourer and of the social amenities of village life; the placing of more people on the land; the growing of timber for commercial purposes; the provision of capital to make good the shortage of cottages and small houses in certain urban districts; the extension of compulsory powers for the purchase of land for the good of the community now held up without good and sufficient reason; the facilitating of purchase under compulsory powers upon a more equitable basis and at less cost; the adjustment of the recent land taxes so as to simplify their practical application; and protection against importation of agricultural products from Germany.

All visitors to Kew Gardens will regret that its principal landmark, the Chinese Pagoda, originally erected in 1761, to the design of Sir W. Chambers, and officially known as the Temple of the Sun, was utterly destroyed during Tuesday night's gale by the blowing down upon it of a great cedar of Lebanon. When first built the Pagoda, which had recently been redecorated, had wooden dragons in highly coloured enamels at the terminals of the minor roofs on each story, but in 1820 these picturesque features vanished. The roofs were covered with copper. Both Mr. Decimus Burton and Sir W. J. Hooker advocated the restoration of the temple according to its original model, but the expenditure of public money was considered too great.

A meeting of the Town Planning Committee of Edinburgh Town Council has been held to consider the motion of Councillor Deas, to review the whole policy of town-planning as applicable to the city. Mr. Deas, who spoke to his motion, insisted on the importance at the present juncture of adopting a policy which would meet present and allow of future developments. Such a policy should, in his opinion, take into account not only the city, but adjacent territory. He also referred to the importance of thinking out how their sea-front should be developed in view of the position of Portobello, and of the relation of the city to the Midlothian coalfields and Rosyth. Mr. Deas further suggested that the Council might endeavour to get fuller information by calling in outside expert opinion to help them. A discussion ensued, and the meeting was adjourned for further consideration of the proposal.

We learn that the Admiralty, after conducting the most exhaustive tests, with every class of adhesives, for the purpose of ascertaining the most suitable and reliable for the manufacture of naval aeroplane and seaplane propellers, have now "approved" "Croid" (extra strength quality). We believe contractors for propellers for War Office planes have been using this material for some time past. "Croid" in its standard strength quality is, we are aware, commonly employed by a large number of leading cabinet-makers and others—on account of its being usable in a cold state, as well as on account of its immense tenacity. The great strain to which propellers are subjected and the constant variation of temperature and atmospheric conditions call for

something beyond the powers of an ordinary glue, and the makers of "Croid" The Improved Liquid Glues Co., Ltd., of Great Hermitage Street, London, E.—are to be congratulated on having produced an adhesive which has successfully passed the severe tests which the Admiralty especially have need to apply.

### CHIPS.

The church of St. Lawrence, Skellingthorpe, Lincolnshire, was destroyed by fire on Sunday, only the tower being saved.

Mr. F. J. Reilly, surveyor and inspector to the Cokermouth Urban District Council, has left that town to take up military duties.

Town-planning and housing schemes have received a serious set-back owing to the war, states the annual report of the Local Government Board for 1914-15.

The twenty-sixth list of Members, Licentiatees, and Students R.I.B.A., serving with H.M. Forces, shows a total to date of 57 Fellows, 423 Associates, 225 Licentiatees, and 271 Students.

A Local Government Board inquiry is to be held at Nuneaton to-day (Wednesday) into an application by the corporation for sanction to a loan of £2,000 for laying a water-main from Heath End Road to Manor Court Road.

Mr. Harold E. Mathews, A.R.I.B.A., of Uttoxeter Road, Derby, who, as a "Territorial," was called up when war broke out and joined the 5th Batt. Sherwood Foresters, has since been promoted Captain, and now Major, attached to the Headquarters Staff, London.

The late Sir Charles Horace Radford, of Plymouth and Mullion, Cornwall, an alderman and magistrate for Plymouth and founder of the Art Gallery and Museum, bequeathed a number of oil-paintings and water-colours to his wife for life, and then to the Mayor and Corporation of Plymouth.

The death took place at Stockton-on-Tees on Wednesday of Mr. W. Ford, the oldest corporation official. He was appointed gas manager forty-eight years ago, and retired from the position in June last, when he was appointed consulting engineer of the gasworks. He was president of the North of England Gas Managers' Association in 1879, and again in 1908.

The longest made road in the world is just now nearing completion. It is 3,384 miles in length, and extends from New York to San Francisco. It is designed primarily for motor traffic, but other vehicles will not be debarred from using it. Its average width is about sixty feet, and it passes in a direct line through twelve States and more than 200 counties. It has been christened "Lincoln Highway," after President Abraham Lincoln.

M. Auguste Rodin has made over by deed of gift to the French Government the entire collection of his own works of sculpture and his collection of Roman, Greek, and Egyptian antiquities, together with the Palais Biron, where these works are assembled, which will shortly be opened to the public under the name of the Musée Rodin. The sculptor retains his studio in the Palais, but the rest of the extensive building and its grounds, with their artistic equipment, become public under Government supervision.

The Rand Water Board have decided to proceed with a modified scheme for supplying the Witwatersrand with water from the Vaal River. Originally the scheme was one for impounding 20,000,000 gallons of water and providing plant for pumping 10,000,000 gallons to the Rand. It has now been decided to proceed with the erection of the barrage on the original lines, but to install a plant capable of dealing with only 5,000,000 gallons. The cost of the scheme is estimated at £758,000, including an amount of £42,000 already expended for surveying.

An inquest was held at Dudley on Friday on Abraham Passmore (sixty-seven). The Straits, Lower Gornal. The deceased man, a foreman bricklayer, in the employ of Messrs. Gibbons Bros., was assisting in carrying out a building contract at the National Projectile Factory at Dudley, and on March 17 fell from a scaffold 20 ft. from the ground. The building to which the scaffold was attached had been completed, and it was supposed he went up to finally inspect the work. Three planks had been removed from the scaffold, and three remained. A workman expressed the opinion that the planks were slippery, owing to the wet weather. A verdict of "Accidental death" was returned.

At the annual meeting of the Ipswich Master Builders' Association Mr. Charles Green was elected as president, Mr. Robert Catchpole as vice-president, and Mr. Charles Barrett as treasurer and secretary.

A picture palace is being built in Arthur Square, Belfast, from plans by Mr. Bertie Grewe, of London. The contractors are Messrs. H. and J. Martin, Ltd., of Ormeau Road, Belfast.

The annual conference of the Sanitary Inspectors' Association will be held at the City Hall, Cardiff, from September 27 to 30 inclusive, under the presidency of Sir James Crichton-Browne.

Mr. H. Sudlow, architect, of Messrs. Martin and Co., contractors, of Calcutta, has been selected as assessor in the Calcutta Improvement Trust Tribunal, in place of Mr. Cowley, whose term of office has expired.

The Princess Theatre, Toronto, is to be rebuilt ready for the season commencing in September. The seating capacity will be increased from 1,850 to 2,200, and the building will be made twenty feet wider. The work is expected to cost \$200,000.

Sanction is sought by the corporation of Poole, Dorset, to borrow £27,832 for waterworks purposes. The plans have been prepared by Mr. A. P. I. Cotterell, and provide for the enlargement of the pumping station, rearrangement of mains, and water-softening apparatus.

Mr. P. T. Harrison, borough engineer of Chelmsford, reporting to the Sanitary Committee of the corporation on the question of a site for a refuse destructor, suggests that it should be adjacent to the gasworks. He says that the site is almost central and lies low.

The West Sussex Hill Tribunal, consisting chiefly of members of the Petworth Rural District Council, have refused the claim to exemption of the sanitary inspector to that district. The Tribunal held that the council could arrange for the work to be done by combining two offices.

Miss Helen Farnsworth Mears, sculptress, died on February 18 at her home in New York City. Miss Mears modelled the heroic figure "Genius of Wisconsin," placed on the dome of the Wisconsin Capitol building, and many other important works. She was a pupil of Augustus St. Gaudens.

At a meeting of the town improvement and streets committee of the Newcastle-on-Tyne Corporation, a report was presented on unoccupied house and shop property in the city. The number was reported to be 151. Of these, five were flats, 77 self-contained houses, and the rest house and shops combined. In 66 cases it was doubtful if the premises were fit for occupation.

Mr. H. Graham Montagu was buried at Locksbrook cemetery, Bath, on Thursday with military honours. For over thirty years he was sanitary inspector under the Bath Corporation, and on retiring in 1900 went to reside in Bristol. Mr. Montagu went through the Crimean war in the Royal Fusiliers, and exchanging into the Somerset Light Infantry, was with the 13th in the Indian Mutiny.

An exhibition of great interest and value has been held in the Victoria Art Galleries, Dundee, following the completion of a photographic survey. The idea of the survey was to obtain negatives of everything to illustrate Dundee and its life in the early part of the present century, and so varied are the prints that the exhibition had to be classified into twelve sections. In all 2,000 prints were taken, of which 1,500 were exhibited.

By the casting vote of the chairman, the Liverpool Arts Committee decided on Friday to recommend the city council to rescind the resolution suspending until the conclusion of the war the Autumn Exhibition at the Walker Art Gallery. The anonymous offer to defray all the cost of the exhibition, apart from establishment charges, should, they advised, be accepted, the whole of the receipts to be devoted either to war funds or to the purchase of works for the permanent collection.

Mr. Balfour unveiled on Friday a memorial bust in marble of Mr. Joseph Chamberlain which has been placed in Westminster Abbey. It occupies a niche on the north of the Western entrance, close to the side with the memorial to Zouka Maculay, and near to the monument erected by Parliament to commemorate two Prime Ministers, Lord Salisbury and Sir Henry Campbell-Bannerman. The sculptor is Mr. John Tweed and it is placed upon a pedestal of Hopton stone modelled by Mr. E. B. Maufe.



The rural district council of St. Columb have appointed Mr. S. Bawden, of Treviglos, to the position of surveyor.

Mr. A. C. Maple, builder, Shoreham, has been appointed by the East Lancing Sea Defence Commissioners, Shoreham, permanent superintendent of works.

Sergeant James Harper, of the Royal West Kent Regiment, assistant engineer to the Corporation of Bromley, Kent, was killed in action on the 18th ult.

Messrs. Roll and Taylor, builders, High Street, Epsom, are engaged on the erection of a number of new buildings at Woodcote Park Hospital for the Government.

The corporation of Falkirk have accepted, under certain conditions, the offer of £2,250 made by the Prudential Assurance Co. for a site at the corner of Vicar and Bank Streets, on which the company propose to erect new branch offices.

The city council of Coventry have raised the salary of Mr. T. R. Whitehead, engineer and manager of the tramways, from £500 to £600 a year. Since the tramways were acquired from a company by the corporation in January, 1912, £22,000 has been expended on extension.

Mr. A. R. Bleazard, borough engineer of Clitheroe, has been re-elected chairman of the Northern District of the Institution of Municipal Engineers, and Mr. G. H. Hopkinson, assistant borough surveyor of Chorley, has been appointed hon. district secretary, in succession to Mr. R. J. McKinn, who has been appointed surveyor of Richmond, Yorks.

A range of new chemical laboratories has been erected at University College, Gower Street, from plans by Professor F. M. Simpson, F.R.I.B.A. The site, which is to the north of the main buildings of the college, has a frontage of 315 ft. to Gower Place, and the area is about 17,500 square feet. The building comprises a half-basement, ground, first, and second floors.

At the last meeting of the Cricketh Town Council it was announced that an action claiming £328 had been entered against the council by Messrs. Bushby and Son, the contractors of the new waterworks; but the matter, happily, had now been amicably settled, the action being withdrawn on payment of £83 by the council, each party to pay its own costs.

The funeral of Mr. W. J. Goode, divisional surveyor for East Central Shropshire, took place at Wellington, Salop, on Tuesday in last week, and was attended by officials of local public bodies and members of the Wellington Company of Volunteers. Mr. Goode, who was forty years of age, died in a nursing home after a few days' illness. He leaves a widow and four children.

An inquiry into the application by the Upper District Committee of Renfrewshire for authority to prepare a town-planning scheme for the East Renfrewshire district was held on Tuesday in last week, in Glasgow, before Mr. David Ronald, the Commissioner appointed by the Local Government Board for Scotland. After a number of objections had been lodged and evidence led, the commissioner intimated that he would submit a report to the Local Government Board.

The City Corporation recently wrote to the Chancellor of the Exchequer, pointing out that motor road-sweeping machines, which are used for cleaning the streets and are made in France, were being detained at the Customs pending the payment of duty. They added that it would seem obvious that the intention of the Finance (No. 2) Act, 1915, was to exempt motors used in the public service by local authorities. A reply has now been received from the Treasury stating that it has been decided not to charge duty on the importation of these machines.

A confirmatory faculty has been asked for at the Chester Consistory Court in reference to the gift by the vicar and wardens of St. Anne's, Sale, of a strip of land 4 ft. 3 in. wide to the urban district council, so as to widen and improve the road. The council had taken down and rebuilt the stone gate piers and entrance steps to the churchyard, and made other improvements. The Chancellor (Sir P. B. Wilbraham) said the transaction could hardly be called a sale, but was more a giving away of the church's property. After hearing additional evidence, however, he decided that the best thing would be to grant a confirmatory faculty.

#### TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Elingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

\* \* Drawings of selected competition designs important public and private buildings, details of old and new work, and good sketches are always welcome, and for such to charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc., we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

Telephone: Gerrard 1291.

Telegrams: "Timeserver, Strand, London."

#### ADVERTISEMENT CHARGES.

The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of Eight Words, the first line counting as two, the minimum charge being 5s. for four lines.

The charge for Auctions, Land Sales, and Miscellaneous and Trade Advertisements (except Situation Advertisements) is 6d. per line of Eight Words (the first line counting as two), the minimum charge being 4s. 6d. for 50 words. Special terms for series of six insertions or more can be ascertained on application to the Publisher.

#### BACK ISSUES.

Most of the back issues are to be had singly. A back issue over one month old will be charged 6d. each, postage 1d. Subscribers requiring back numbers should order at once, as they soon run out of print.

Handsome Cloth Cases for binding the BUILDING NEWS, price 2s., post free 2s. 5d., can be obtained from any Newsagent, or from the Publisher, Elingham House, 1, Arundel Street, Strand, W.C.

#### SITUATIONS VACANT AND PARTNERSHIPS.

The charge for advertisements for "Situations Vacant" and "Partnerships" is One Shilling for Twenty-four Words, and Sixpence for every Eight Words after. All Situation Advertisements must be prepaid.

#### SITUATIONS WANTED.

Advertisements not exceeding Thirty Words, inclusive of name and address, are inserted under the heading "Situations Wanted," free of charge.

Rates for Trade Advertisements on front page and special and other positions can be obtained on application to the Publisher.

#### REPLIES TO ADVERTISEMENTS.

Replies to advertisements can be received at the office, Elingham House, 1, Arundel Street, Strand, W.C., free of charge. If to be forwarded under cover to advertiser, an extra charge of Sixpence is made. (See Notice at head of "Situations.")

Advertisements for the current week must reach the office not later than 3 p.m. on Tuesday. Front-page advertisements and alterations or stop orders for serial advertisements must reach the office by first post on Monday to secure attention.

RECEIVED: J. S. and Sons—A. and N.—P. G. E. and Co. E. R. R. and Co.—Co. Architect, W.—A. O. and Sons, Ltd.—P. G. Co.—P. and G.—J. C. and Son, Ltd.—S. and P., Ltd.

R. G. No.

TENANT.—If on agreement, no.

BUILDER.—The price seems a fair one.

ENQUIRER.—We know nothing of the firm mentioned.

PLASTER.—It is not a material we should use ourselves. Keene's will answer every purpose.

VERY URGENT.—To prevent disappointment, owing to restricted and later postal deliveries, it is not safe to wait till Tuesday morning to send us advertisements for the current week's issue. Many reach us after 3 p.m., at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order THE BUILDING NEWS regularly of their newsagent or bookstall. With the present shortage of paper and probable still further rise in its price, it is futile to expect a newsagent to saddle himself or us with surplus unsold copies to oblige chance customers, on which, moreover, he or we have to pay heavy increasing carriage charges.

#### TO ARMS!

Orders for the Week ending April 8, 1916.  
4th BATT. CENTRAL LONDON VOLUNTEER REGIMENT.

OFFICER FOR THE WEEK.—Platoon Commander R. W. Corbett.

NEXT FOR DUTY.—Platoon Commander L. C. Hughes Hallett.

APPOINTMENT.—The Paymaster, Mr. William Radford Hughes, is granted the rank of Platoon Commander as from January 29, 1916.

GENERAL PARADE.—Saturday, April 8, at 2.45 p.m., at Headquarters. Uniform.

SCHOOL OF ARMS.—Tuesday, April 4, Headquarters, 6 to 7 p.m.

LECTURES.—Tuesday, April 4, Mr. J. Roberts, "Demolitions," 7.15 p.m. Thursday, April 6, Instructional Parade, 5.45 p.m.

MUSKETRY.—See notice and time-tables A and B at Headquarters.

DRILLS AND PARADES.—For details of all drills and parades, see Notice Board at Headquarters.

EXTRENCING PARADE.—Sunday, April 9, at Offord. Parade at Victoria Station (L.C. and S.E. Railway Booking Office). Uniform, haversacks, and water-bottles, at 8.35 a.m. Mid-day rations to be carried. Railway vouchers will be provided.

MEETING.—The Adjutant desires to meet the Platoon Commanders in his office on Saturday, April 8, at 2.15 sharp, before parade.

By order,

MACLEOD YEARSLEY, Adjutant.

March 30, 1916.

#### MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY (To-day).—Royal Society of Arts. "Painting by Dipping, Spraying, and other Mechanical Means," by Arthur S. Jennings, 4.30 p.m.

Royal Archaeological Institute. "The Monumental Effigy of Bridget Countess of Bedford at Cheneys," by Alfred C. Fryer, Ph.D., F.S.A.; "The Effigy of a Thirteenth-Century Abbot of Ramsey: Some Further Examples of English Medieval Alabaster Tables," by Philip Nelson, M.D., F.S.A. Burlington House, W., 4.30 p.m.

Institute of Sanitary Engineers. "Planning for a Town of 50,000 Inhabitants," Fellowship Thesis, by Andre Le Marchand. Caxton Hall, S.W., 7 p.m.

THURSDAY (April 6).—Chadwick Lecture. "Emergency Military Construction," by A. Saxon Snell, F.R.I.B.A. Royal Sanitary Institute, 90, Buckingham Palace Road, S.W., 8 p.m.

SATURDAY (April 8).—Association of Managers of Sewage Disposal Works. District Meeting at the Heston-Isleworth Sewage Disposal Works. Paper by W. G. Smith, works manager, 3 p.m.

MONDAY (April 10).—Royal Society of Arts. "Surveying, Past and Present," Fothergill Lecture No. III., by Edward A. Reeves, 4.30 p.m.

Surveyors' Institution. "The Principles of Town-Planning," by W. E. Davidge, F.S.I., A.R.I.B.A., 5 p.m.

TUESDAY (April 11).—Royal Society of Arts. "The Timber Resources of Newfoundland," by Sir Daniel Morris, K.C.M.G., 4.30 p.m.

WEDNESDAY (April 12).—St. Paul's Ecclesiological Society. "Some Churches in North-East Hertfordshire," by A. Whitford Anderson, St. Paul's Chapter House, E.C., 8 p.m.

THURSDAY (April 13).—Shelfield Society of Architects and Surveyors. Annual Meeting. Architectural Association of Ireland. "Celtic Art," by C. G. MacDowell, 15, South Frederick Lane, Lane, Dublin, 8 p.m.

FRIDAY (April 14).—Town-Planning Institute. "Horizontal and Verticality in the Architectural Treatment of Town-Planning Schemes," by Barry Parker, F.R.I.B.A., 8 p.m.

The late Mr. Peter Whyte, of Magdala Crescent, Edinburgh, formerly superintendent of Leith Docks, and assistant at Bute Docks, Cardiff, left personal estate amounting to £69,087.

Sir Verney Lovett opened a town-planning exhibition at Lucknow at the beginning of March, and Professor Geddes delivered his initial lecture to a large and appreciative audience.

Mr. R. Anning Bell, A.R.A., has presented to the Royal Infirmary at Glasgow his large canvas "The Marriage at Cana," which was a prominent exhibit in Room VI. at the Royal Academy two years ago.

The libraries and art gallery committee of the Rochdale Corporation have received as a bequest from the late Sir Clement Roys, C.B., a three-quarter portrait of the testator by Sir Hubert Von Herkomer, R.A., a bust by Onslow Ford, R.A., several oil paintings of Old Rochdale and the neighbourhood, and original drawings by Harry Furniss and other black-and-white artists.



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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### Strand, W.C.

Long-stow Hall, Cambridge-shire. Water, Sewage and Power House, Messrs. John W. Simpson, F.R.I.B.A., and Maxwell Ayrton, A.R.I.B.A. Architect.	
The Heating and Lighting Building and Porter Lodge, The National Library of Wales, Aberystwyth, Mr. Sidney K. Greenlade, A.R.I.B.A. Architect.	
Whitevale Foundry, Glasgow, for Messrs. David Auld and Sons, Limited. Views, plans, and structural details. Mr. S. B. Lithgow (Messrs. Brand and Lithgow), Architect.	

### WHO IS YOUR CONTRACTOR?

Much has been said and written here about the transition of the contractor from earlier days down to our own time of pure price competition with its resulting cheap and bad building. We said something once again ourselves, last week, with special reference to the coming rush to build cheaply when peace is made, with all the impetus that dear prices of materials will lend. If the building owner will shut his eyes to facts there is little more to be said. If, on the other hand, especially when he is a public authority or a bona-fide investor in the most stable of all property, he can be induced to open his eyes, we may once again return to the honest methods of the days of simpler construction when the work was done by one contractor or "builder," who usually carried on the job with workmen who were directly employed and controlled by him—for in those days there was little sub-contracting. As the sub-contractor began to play a larger part, this "builder" became a "general contractor," meaning a man in general charge of building operations. Time also brought about a further division of the work of the builder, a division growing more pronounced until the duties of the architect and the duties of the general contractor became rather sharply separated. Then the architect began to assume some of the work performed by the general contractor; and to-day we find many persons holding the opinion that the architect should take over all of the work of handling, correlating, and manipulating the many kinds of work upon a building, and that the general contractor should be eliminated. Equally strong opinions are held that the function of a general contractor cannot be performed so effectively by an architect, for an architect cannot become as intimate with many men and their ways as does a contractor, merely because the contractor is one of them and not removed from them. In both of these opinions it is admitted that the specific work of a good general contractor is important to the result, and that it could be merged with that of the architect. Proper organisation within an architect's office would be comparable to that within a good general contractor's office. It would also be true that a general contractor by reorganisation and additions could assume all duties now performed by the architect. Both of these methods are in use to-day, but it is hard to prophesy in what direction further extensions will come.

Discussion may beneficially influence the future, and we are glad to see it encouraged in one of the "Monthly Letters" issued by that live body, the Master Builders' Association of Boston, which

handles topics of the sort in a fashion some of our sleeper kindred organisations this side might well emulate oftener. As it points out, in America, as in most newly settled countries, in the early days of building, general contractors were all carpenters, because this part of the work was the largest of all labour and total cost upon a building. Then came increasing complications in building operations—more heating, more plumbing, together with steel and iron work, electric work, tiling, marble, elevators, special fittings; and more than in any of these came added cost of mason work, due to largely increasing use of masonry materials following thick settling of communities, or for other reasons. As a result of these changes, the carpenter work is not so large a part of the whole as formerly, while on many kinds of work the mason work is the largest subdivision, although rarely approaching one-half of the total cost, excepting for fire-resistive buildings of the factory type. This transition has led, naturally, to mason contractors frequently becoming general contractors. And now another turn of the wheel and we have the extreme antithesis of the old-time general contractor in the "broker" contractor. This contractor may do a large amount of work in preparation of working drawings and in other office detail necessarily accompanying work of any size or complication, but he does no part of the trades work with his own employees, either upon the building operation itself or in the fabrication of materials to be used. This contractor, also, is a natural outcome of changed conditions, wherein, on many kinds of work, no one contractor's part is more than one quarter of the whole cost. With three-quarters of the work sublet in any event, it became easy to set up an arrangement whereby everything is sublet. Of course, contractors often do more than one part of the work upon a building operation, as when plumbing and heating are done by one contractor. The commonest combinations, however, lie among the departments of carpenter work, mason work, plastering, and painting, and frequently at least two of these four items are done by one contractor.

Thus has come about the evolution of the general contractor, who, with from six to a dozen or more sub-contractors working under him, should have business ability to tie together the various trades and see to their harmonious operation; business ability to deal properly with architect and owner; business ability to administer his own work properly in all its details. More than all else, a general contractor should know the work he is to do—should be intimate with its every detail by experience leading to good judgment. These same statements apply

in a proper degree to all sub-contractors. They are business truisms, but, while accepted as such in other industries, they are, for the most part, ignored in the building trades. Here as in America:

In building operations price seems to count first; price is what is requested from bidders, in nine competitions out of ten the list of bidders, however carefully selected, includes concerns notoriously low priced. This is not a broad statement, but a careful one. Bidders are said to have "done lots of work," to be "good fellows"; inquiry yields the information that they did "so-and-so's work," and I never heard any complaints from it; owners insist upon receiving bids from contractors whom their architects would never recommend, in bidding upon public work, any man can enter, and such work often goes too low for the best results.

Even when a small list of competitors is carefully prepared, there is uneasiness about which the architect will know little or nothing. One man "trades sub-bids," an undesirable practice which helps the owner to a low price at the expense of his work; another man does not look out for delivery of materials or work of sub-contractors at proper times, leading to delay and other injurious results. On most work the architect knows little of troubles occurring after a short time succeeding completion. What does he know, usually, of the durability of the work which has been done under his direction?

It is such things as these which keep the careful architect continually harassed. He knows that no plans, specifications, or supervision can fail to illustrate the silk purse and sow's ear proverb if the contractor is poor or cheap. The difference between a job which is just good enough to "get by" and one with which he and everyone else is perfectly satisfied is wide, and right here is where the owner is seriously misled. Many an owner has relied upon the architect to get a desirable result regardless of the contractor; but every one of experience in the business knows that the quality of the result comes largely through the contractor. A protest or rejection because of poor quality is a most serious matter for an owner to undertake. Should the contractor choose to go to the courts he wins, for juries are not familiar with quality in building operations. It is not too much to say that a small difference between a first-class result and a result which is poor but not so poor that successful protest can be lodged against it is 20 per cent. of the cost of the work. A 2 per cent. variation can be made with carefully drawn plans and specifications. The contractor makes as much money in one case as in the other.

Then the owner, what of him? He looks over his figures and very often finds a variation of 20 per cent. He is not a fool; he holds the architect to be all possible; he believes estimating is exact; and he has no reason why he will not get a good result with any contractor. These three assumptions are all wrong, and his result is what he gets, usually to no purpose. The contractor who has figured the right price for a high quality job can survive only if he is a good "Kidd's trick" and one that is not of his virtues.

Why is this allowed? In some degree, no doubt, because the ordinary business experience of the layman owner does not tend to open his eyes. Often he knows this, and tells you that because he knows it he employs an architect to protect him.

and yet we are told that last year the half-dozen leading and reliable contractors in Boston, who would be named as such by a consensus of Boston architects, were idle or dull in their business, while the cheap contractors were busy. Why? Because the half-dozen leaders were higher-priced, and their judgment of the value of the work they were asked to bid for was ignored. Because also it was apparently forgotten how the cost of a building is distributed. As the Boston Master Builders' Association points out:—

It is important to consider what part the general contractor plays in building construction to-day; and, to save complication of figures, the fewer instances of the handling by one man of two or more trades will not be considered. In a wood building—frame walls, floors and roofs—the carpenter's part of the work is about 50 per cent. of the whole cost. When the construction is of fire-resistive type throughout (meaning a maximum amount of mason's work), the mason's part becomes the largest. It is between 25 and 40 per cent. of the whole cost, and averages, as such construction is now done, about 30 per cent. No other single contractor's work, excepting one of these two, runs nearly as high. When the carpenter work is 50 per cent. the mason work will be about 15 per cent., and the carpenter work drops to this figure or below as the mason work mounts to its maximum. In these figures, and in what follows, buildings of the factory type are not included; and for these the percentages of one of these two larger parts of the work increase, chiefly because the numerous other parts of the work are much smaller. The other contractors almost invariably involved upon building operations are the plasterer, painter, plumber, heater, electrician and hardware man; while numerous other items, such as gas, marble, tile, elevators, linoleum, structural steel, ornamental iron, and roofing, are commonly included; and the mason work and carpenter work themselves are commonly in part sublet, involving cut stone or marble, stair building, sashes, doors, screens, and other things. Over a score of separate contractors may be involved, while the number is rarely less than a half a dozen.

With the maximum amount spent by any one contractor fixed at 50 per cent. of the total cost, with an average far lower, about one-half (or never over 25 per cent. of the total) is for that contractor's labour. The remaining 75 to 85 per cent. is for materials bought or for sub-contracts let. More than three-fourths of the cost of building construction is money spent for items which may vary, easily, 100 per cent. in price and yet result in a building—in A Building. Mr. Owner, who is your contractor?

The trend toward pure price competition in building construction perhaps hit the sub-contractor harder than the general contractor, for the latter, by partly sacrificing his pride, could get a share of work by using low sub-bids. Tendencies in this direction finally became so strong that architects, in self-defence, began to withhold allowances, or to let separately, many parts of the work, notably plumbing, heating, and electric work. For these three items this is to-day a common practice.

These same causes have forced the architect to delve deeper into constructional detail in every direction than did the best offices a few years ago. Some architects have assumed the work formerly done by the general contractor to so great an extent that the latter need only keep books, hire men, and carry a bank account—is this exaggeration? Ask the secretary of the Master Builders' Association to prove it to you.

Will that practice grow here, as it is evidently growing in America? If it does, the architect will have to know more than some do about materials and methods. In matters of building construction the architect works partly upon theory, though informing himself as well as possible from the experiences of others and from observation; the contractor works from practice, and keeps apace with the theoretical side as best he can. In this, as in other things, the theory and the practice must go together, and are useful to each other. They cannot be separated without detriment. With a good architect and an efficient general contractor good results may be fairly expected. The

choice of both rests with the client. As things are, he is oftener than some of us think debating with himself which he can do without—unfairly to both, perhaps, while he insists on including the low-grade contractor in his tender-list, which not infrequently manifests divergencies of price which are so ludicrous!

### THE PRINCIPLES AND POSITION OF TOWN-PLANNING.\*

By W. R. DAVIDGE, F.S.A.

Some apology, perhaps, is necessary for the discussion of such a subject as town-planning at the present time, and with many of us the first impression is to say, "Let town-planning rest! Get on with the war!" It is indeed impossible to do much while this devastating war lasts, but there will undoubtedly, on the termination of the war, be an unprecedented demand for work. This demand will have to be met, and met rapidly. It is essential, therefore, for plans to be ready for such time as they can be carried out, and such plans must be the result of careful thinking and a right understanding of the problems to be faced. For a couple of years very few new houses have been erected, and even with a diminished civil population there is already very serious congestion, so that in housing alone there is practically certain to come a period of activity unprecedented for many a long year. Already, too, we have evidence in the report of the Departmental Committee on Land Settlement for Sailors and Soldiers that after the war there will arise a need for the planning of village communities in all directions, and this is but one phase of the many activities which will come into being on the cessation of hostilities. There is every need, therefore, to use this period of quiescence in careful investigation and preparation for the near future. There has in the last six years been an amazing wealth of literature, and such a mass of reports on various phases of the subject, that it is somewhat difficult to disentangle the exact facts as existent. In Great Britain the creed of town-planning may be expressed briefly as "more air, more accessibility, more attractiveness!" or in other words, health and social well-being, particularly as applied to the prospective building land around our towns. In conjunction with this there is at the same time, so far as private estates are concerned, a very evident effort, in some cases almost a straining, after the picturesque. In modern garden suburbs, equally with the mediæval town, the effort after picturesque features has secured many charming examples, which are a welcome relief from the drab of the everyday town.

#### THE NEED FOR TOWN-PLANNING.

One thing that stands out clearly, though, in the maze of these different national and local characteristics is the paramount need for some form of town-planning. Whether one sets out with the purpose of sweeping away shums or of providing for the future growth; whether one is an enthusiast for parks and open spaces, or merely desirous of the commercial advantages of rapid transit and business facilities, all nations and nearly all communities are agreed that, if it is reasonable to plan the alterations to a house that one intends to inhabit, it is still more desirable to plan the town and its extension; hence the first general principle which we can all accept is the universally recognised need for town-planning. Our first accepted principle, then, is: A town-plan is necessary. Following on this, however, must come the recognition that such a town-plan is not a stick article, but must be made to the measure of the district. A town's plan must be its own.

#### COMMUNITY CONTROL

The English Town-Planning Act of 1909 has focussed public attention on the subject, but it should be remembered that this Act was long preceded by the Italian, Swedish and Prussian Town-Planning Acts, all of which provide not only for town extensions and new streets being laid out on the lines pre-

scribed by the municipal authority, but also give the authorities much greater powers of purchase or expropriation. The one thing, however, which all have in common is the need for community control. No one in this country would, in ordinary circumstances, consent to the bureaucratic dictation which is so evident in the municipal affairs of Central Europe, but, nevertheless, some form of community control is essential.

#### TENDENCIES IN TOWN-PLANNING.

So far, in English town-planning schemes, there has been a growing tendency to draw up legal restrictions which have a negative value only in preserving the amenities of a district. Negative restrictions alone are insufficient. In the light of the experience of the past six years, that there shall be a powerful constructive expert control, is equally necessary. Some years ago Mr. Paul Waterhouse suggested that there should be appointed to each district throughout the country an architect and surveyor, who should have charge of all constructive design, and whose dictum should be final. Without going to this length, however, there is no doubt that the surveyors throughout the country already exercise a beneficial control, though the powers given by the various by-laws and building Acts hardly in any instance give control over design. It is becoming increasingly evident, however, that if the development of our towns under the Town-Planning Act of 1909 is to be any advance at all on the current estate development prior to the Act, it will be necessary to have much more control over the design of buildings than is the case in the schemes so far adopted.

#### ZONE SYSTEM AND COMMERCIAL DISTRICTS.

The division of a district into building zones in which different building regulations apply has not found favour in English practice, although separate districts for buildings of the warehouse or factory class have been adopted at both Ruiship and Birmingham. From the point of view of protection of property owners in residential districts, some form of restraint as to the location of commercial buildings is clearly necessary, and, so far as the Act has gone, the constitution of separate areas for factory and commercial purposes has been carried out without difficulty. As so many of us are aware, however, the real test of such restrictions will be felt in the next generation. With the continual growth and prosperity of a town the commercial area will surely expand, and unless adjacent space is provided for expansion the business side of the town will necessarily overflow into the residential quarters. Provision must, therefore, be made for the gradual expansion of commercial districts.

#### INCREASED HEIGHT OF BUSINESS PREMISES.

It is the endeavour to crowd as many office buildings as possible near this commercial centre that has created the "skyscrapers" of lower New York. In this connection the report of the Heights of Buildings Commission for New York City gives some interesting information, proving conclusively that the very tall building is not a paying proposition. In the interests of traffic facilities, public health, and public economy, the height of buildings should be kept within reasonable limits.

#### LIMITATION OF HOUSES PER ACRE.

In England, although land values in our towns have reached a considerable height, there has been no great demand for very tall buildings, and it is probable that the present height limits, where established, are sufficient to check this tendency. The limitation of the number of houses per acre has, however, been enthusiastically taken up in this country. The effect of such a limitation must be at least twofold. It tends first to spread the town, and consequently the values, over a larger area, and by restricting the use to which land is put must to that extent decrease the value per acre of land which is already ripe for building. At the same time it will tend to give a corresponding increase of value to land further from the town. Its effect on the already over-built city areas cannot fail to be beneficial, for by fixing a standard of suburban development—a high

\* Read at the ordinary general meeting of the Surveyors' Institution, held on Monday, April 10, 1916.

standard of amenity, and a comparatively low standard of price, it will be financially impracticable to force up values in the built-up areas above a reasonable limit, and for the same reason it will not pay to unduly increase the congestion of building.

#### THE CAUSES OF DEVELOPMENT.

*Influence of Geographical Position.*—There is a reason for most things, and not least for the position of towns where they exist. In most cases the community has grown up either because of some natural advantage—the possession of a coal mine, or a well, or a spring, or a ford across a river, or a hill for defensive purposes, or because of its position at a road, junction, or along some important line of route. The commercial success of the town is no less dependent upon a continuation of these conditions. The weekly market perhaps attracts business; the opening of a factory or a new industry brings an influx of people, but the causes which operate to bring about this prosperity are deep set in the natural, geographical, and strategical position of the town. Private residents will not be attracted to a town which is a blot on the landscape, and businesses will not come unless there is business to be done. Any town-plan, therefore, for the development of a town must aim first at making the utmost of all such natural and geographical advantages, and then at guiding the development into the most advantageous lines for the benefit of the town and its residents.

*Transit Facilities.*—The provision of efficient and up-to-date means of transit is one of the most important items in the development of towns; yet, strange as it may appear, this all-essential detail is omitted from the calculations of many would-be town-planners. On more than one occasion during my recent visit to the Colonies I was asked to advise as to the lay-out of estates or townships many miles away from any existing community, with no special *raison d'être* of their own, and which under hardly any circumstances could become self-supporting and self-contained. It is evident that, in the absence of any special commercial or natural advantages, or of facilities for easy communication with existing centres, a community cannot expect development. It must not be thought from this that any new "garden cities" cannot be created, but they can only be successfully created if they can secure enough commerce or industry to make them self-supporting, or if they are linked up to existing communities by easy and rapid transit of some description, so that the new community can serve either as a branch industry or as a health resort or dormitory to one or more existing towns. Rapid transit, therefore, is all important to the success of any town. A most concise and comprehensive report on "The Passenger Transportation Problem" has recently been issued by the general manager of the Manchester Corporation tramways, and forms an excellent summary of what has so far been achieved in this direction in America and the principal cities of the Continent. There is, however, still a wide field for investigation as to the methods of transit most suitable for particular localities, and it is clearly not possible to do more than generalise one or two principles upon which most authorities are agreed:—

(1) Electric "subways" or tube railways can only be commercially successful where the traffic is large and constant. Sub-surface railways are therefore only suitable for communities with a population of over half a million or more. Overhead railways are almost as equally costly as tubes, and by reason of their noise and ugliness are generally regarded as unsuitable to English conditions.

(2) Tramways and motor omnibuses are of more service when run in conjunction with rapid transit lines. In Boston, U.S.A., tramways, subways, somewhat similar to that under Kingsway, have been in operation for some years, but owing to its narrow streets and congested site, the problem in Boston is a very special one.

(3) Special tracks should, if possible, be provided for tramways, particularly outside the built-up areas. Special tramway tracks on wooden sleepers laid in grass have been very successful in many parts of the Continent, and they are now being introduced in the new arterial roads recently constructed in the outskirts of Liverpool.

#### ARTERIAL ROADS.

For many people town planning begins and ends with the planning of roads, and there can be no gainsaying that the main roads into and out of a town are the skeleton on which the plan will hang together. They may, in some instances, be the "bones of contention," but all will be in agreement with the general principle of fixing the routes needed for new main roads, including, of course, reasonable circumferential and cross-roads. The routes for arterial roads should be laid down at an early stage in the town-plan, and definitely secured or sterilised from other uses.

#### ROADS AND ROAD WIDTHS.

Much discussion and many conferences during the past six years have taken place on the question of road widths and construction, especially perhaps as to the allocation of space for various classes of traffic. The general principles arrived at may, I think, be reasonably summarised as follows:—

To secure easy and rapid transit—

- (1) Classification of roads is desirable.
- (2) Provision for fast and slow traffic (fast traffic should not have to slow up for cross traffic), and separate tracks for tramways.
- (3) Sufficient width of roadway for the traffic, but not too wide to be maintained.
- (4) Sufficient width between buildings for all future purposes.

To secure the amenity of the highway—

- (1) Good views from the road—preserving view points.
- (2) Good views of the road—trees, but not too thickly planted.
- (3) Pleasant walks alongside the road—grass and trees where possible.
- (4) Pleasant haunts by the way—an occasional village green or open space.

It should be borne in mind that estate development is not necessarily an object of main roads. And in the lay-out of estates the principles laid down in my paper at this Institution six years ago still hold good, viz.:—

- (1) Main routes must take the direction required by the traffic and contour of the ground;
- (2) Geometrical planning is not necessarily satisfactory;
- (3) Long straight streets, when adopted, should have a definite motive;
- (4) Slight curves or irregularities in frontage lines and building lines may often be adopted with advantage;
- (5) Line of sight should in most cases be restricted within reasonable limits.

#### RELAXATION OF BY-LAWS.

A very important point on which most people are now agreed is, that while it is desirable to have a minimum distance between the building lines, a hard and fast by-law width is undesirable whether it be 40 ft. or 50 ft. (or 66 ft. as in the Colonies). The power to fix building lines is important. The width of macadam or roadway paving provided should be dictated by the use to which the street is put. In residential streets the remaining width available may reasonably be devoted to grass margins and tree planting. The relaxation of by-laws, allowed by the Act to be introduced into town planning schemes, may also in some cases be usefully applied to the by-laws dealing with building lines. The by-law, for instance, requiring party walls to be carried above the roof might in most cases reasonably be waived, and there is also something to be said for the suggestion that in country districts wooden buildings might be permitted subject to reasonable restrictions. Even under the London Building Act it is possible to build a wooden house, provided it is 30 ft. from the adjoining property or any other

building, and it should be at least possible to do the same in the country.

#### INTERNAL IMPROVEMENTS.

For some years now it has been felt that there should be some means of extending the principles of the Town Planning Act to the internal or built-up area of towns, but many difficulties confront us in this direction, and it is probable that for some years to come internal street improvements will have to be the subject of special enactment in each case. Some extension to the whole country of the principles of the Metropolitan Paving Act, 1817 (Michael Angelo Taylor Act), by which local authorities in London can by simple resolution purchase land for street improvement, would undoubtedly greatly simplify the procedure of local authorities.

#### COMPULSORY TOWN-PLANNING.

Another point which has been much discussed is as to the desirability or possibility of making town planning compulsory, and it is probable that all will be agreed that the time has not yet come for compulsory town-planning.

#### THE SENSE PROBLEM.

The encouragement of the community sense has been much more in vogue in the United States than in this country. In the great cities of the States an energetic campaign is carried on for the encouragement of the civic spirit, of a proper pride in one's town; and in many cities, such as Chicago, this feeling finds its outlet in the endeavour to secure not only a great civic centre for the city as a whole, but "neighbourhood centres." Great Britain has grown and prospered under the system of ecclesiastical parishes, and it is difficult for an Englishman to realise the difficulties which other countries labour under where they have not had the advantage of organisation in parishes and parish centres.

#### AMERICAN IDEALS.

American city-planning may be divided into four phases:—

- (1) Rapid transit (already touched upon), which may be described as the engineer's ideal.
- (2) The civic centre, which may be described as the architect's ideal.
- (3) The provision of diagonal avenues and parkways.
- (4) The provision and linking up of parks, and the scientific distribution of children's playgrounds.

#### PRESERVATION OF RIVER BANKS AND VIEW POINTS.

In America it is now a well-recognised practice that river banks and valleys should as far as possible be preserved for park purposes, and that view points and hill tops should be similarly preserved. Such a course is desirable not only from the point of view of amenity, but to secure the stream from contamination, and, at the same time, utilise land which in ordinary circumstances would be unsuitable for building purposes.

#### STREET PLANNING.

Not only is it necessary to preserve the hill-tops and valleys and other natural beauties, but as far as possible the amenities of town life. In most communities there is a considerable proportion of the population which enjoys reducing everything to a dull level of ugliness, and seems almost to take a delight in removing everything in the nature of a tree or shrub. The maintenance of trees and grass is always a troublesome question in England, especially in the neighbourhood of our manufacturing centres. In America, although they have on the whole manufacturing districts, it seems to be easier to dispense with forecourt trees and to throw open stretches of grass, and to lead to the house itself.

*CONTROL OF ADVERTISEMENTS AND BILLBOARDS.*—The control of street advertisements and billboards comes under the powers given under the Town Planning Act, and here the public opinion is coming more and more to the view that advertisements should not necessarily be ugly. They very often are, it is true, but this is more often due to want of thought than deliberate intention to offend. Too often the landscape along our railway routes

and many roads is stamped for ever in our memories with "Pott's Pink Pills," or "Biles' Bile Beans," writ large in the foreground. Such monstrosities ought for ever to consign these goods to perdition; but short of this, all such advertisements should be subject to annual licence by the local authority, and a good stiff licence fee per square foot.

#### PROGRESS UNDER THE ACT.

Some impatience has been manifested in various quarters at the slow-moving machinery set up under the Housing, Town Planning, Etc., Act, 1909, under which a town-planning scheme takes years from the time of its inception to the date of its final approval. In the six years that have elapsed since the Act was passed, some 132 municipal town planning proposals have been before the Local Government Board in England, and 17 in Scotland, but so far only five schemes have been finally approved. The position at December 31, 1915, was as under:

England and Wales.	No. of Schemes.	No. of Local Authorities.	Area of Schemes.
Schemes finally approved .....	5	4	10,265
Schemes submitted to Local Government Board for approval	4	4	4,058
Schemes authorised to be prepared .....	112	78	180,438
Applications made for authority to prepare town-planning schemes .....	11	10	38,503
	132	91 (net)	233,329

Note.—Preliminary notices for other schemes have been served by about 30 local authorities.

At first, sight one is inclined to regard this as a poor result for so much work, but in some ways it is well that such an important matter as laying down the future of our towns should not be rushed through in a few months. It is a work which needs both experience and knowledge—experience of the needs and knowledge of the possibilities of the particular town, as well as a broad understanding of what has elsewhere been achieved.

#### THE CIVIC SURVEY.

The establishment of tentative experiments in a survey work for particular areas has revealed, to some extent, the mass of preliminary information and statistical data necessary to a full understanding of the problem. In few, if any, cases is it possible for a man to grasp the details of the many-sided issues which beset the problem of town-planning, and the civic survey is an attempt to bring together and collate the whole of the available information in a graphic form which will appeal not only to the professional town-planner, but to the members of municipal councils and others who often have not the time to properly study the problems affecting their town. The heads under which such information is most profitably grouped may be taken as:—

- (1) The site
  - (a) Topography;
  - (b) History;
- (2) The industries
  - (c) Growth of commerce;
  - (d) Causes and direction of growth;
- (3) The transit
  - (e) Traffic requirements, origin and directions;
  - (f) Water, traffic, railway traffic, road traffic;
- (4) The enjoyment of life—
  - (g) Health requirements, water, sanitation, fire prevention;
  - (h) Amenities, architecture, parks, and playgrounds;
- and last, but not least—
- (5) Financial considerations
  - (i) Land value and property;
  - (j) Rating, taxation, and loans.

It may seem to some that this covers almost as wide a field as the examinations of the Surveyors' Institution. If so, it is a tribute to the skill and forethought of those who have planned the Institution's examinations to embrace the many-sided activities of our many-sided profession.

#### CONCLUSION.

In matters of town-planning, however, we must realise that to foresee and provide for the whole future growth of our towns is not one man's job, but many. Every profession and every business has a right to be heard, and the plan itself must be the result of whole-hearted co-operation between the surveyor, the engineer, and the architect. In the town-plan an attractive site is of little good without proper means of communication and efficient buildings. The most perfect of communications by rail, by road, or by water will be unsatisfactory unless the site is wisely chosen, properly surveyed, properly drained, and properly built. The most attractive design or grouping of buildings will be of no avail unless the site is first of all suitable, the roads are properly graded, and the means of communication the very best that can be obtained. Co-operation, therefore, between the professions is necessary from the earliest stages of a town-planning scheme, and so far as this Institution is concerned, we can rely upon its willingness to do its share in co-operation with the architect and the engineer in the important work of planning the future of our towns.

#### THE HYMANS POCKET RANGE-FINDER AND SURVEYING TELEMETETER.

The chief drawback to the few pocket range-finders hitherto on the market has generally been the long base-line required, in some



cases amounting to as much as one-tenth the range (or 100 yards in 1,000); and this base, moreover, usually varies according to the range, and has therefore to be measured accurately—perhaps over rough ground or under fire—while at the same time the objects ranged on are kept steadily in view.

The Hymans pocket range-finder is a little instrument constructed on entirely new optical principles, which meets the need felt by every officer for a "one-man" range-finder which shall at once be truly portable, simple in use, strongly made, and not easily put out of order, and with which accurate results can be obtained on a short base of length previously selected. With it ranges sufficient for all purposes of infantry can be taken in a few moments, after very little practice, with not more than 2 per cent. of error on a base ten yards long; while for ranges up to 400 or 500 yards a five-yard base is sufficient.

Longer ranges can be taken with the same degree of accuracy by suitably extending the base, but it is not essential to use a longer base than ten yards for any range, although, with such a short base, the measurement naturally becomes only an approximation as longer ranges are taken. Results correct within 5 per cent. have repeatedly been obtained from a ten-yard base in clear weather up to 2,000 yards.

The distance which can be ranged is only limited by the visibility of the object.

In addition to its use to take the range of any object on a short base as before stated, it can also be used from one position, i.e., without a measured base, when ranging an object of which the size or height is known or can be judged correctly, as, for example, a ship, house, tree, etc.

The distance between two inaccessible points, which need not be visible from each other, may be measured by means of this instrument; and, in conjunction with a sketch-map of the district within view may rapidly be taken. When the slide is pushed right in, the instrument sets off exactly a right angle, and may be used as an optical square.

The instrument can be used with great ease and rapidity; a very little practice will enable

anyone to take a range in a few seconds; it requires no technical knowledge, is simply constructed, and cannot get out of order. Its small size enables it to be carried in the waistcoat pocket. It has been approved by and supplied to H.M. War Office, as well as to many hundreds of individual officers of all ranks, several battalions having been fully equipped with the instrument. It has met with special appreciation for training purposes in musketry and distance-judging, for which it is especially valuable.

The essential feature of the instrument is the measurement of a small angle by means of a variable prism produced by an arrangement of two lenses of equal and opposite power, one fixed and the other sliding in front of it, so as to produce a deviating effect which varies proportionally as the distance between the optical centres of the two lenses is altered. This principle is applied to measure the angle subtended by the chosen base-line and the object ranged. The necessary calculations being performed automatically, no technical knowledge is required, the range being taken merely by aligning at either end of the base-line an image of the range-object (seen in a constant-angle prism within the instrument) with a distant direction-point (seen through the combination of lenses) as shown in the illustration, the required range being then read off by referring to a table affixed to the instrument.

In order that every opportunity may be given for inspection and thorough trial of the instrument without obligation to purchase, it will be sent willingly on approval on receipt of cheque to cover price of the range-finder (and leather case if required), plus cost of postage and packing; and the price will be refunded in full without question on its return in good condition within one week (or such reasonably longer time as may be necessary for officers on service abroad).

The price, complete in cardboard box, is 57s. 6d. A solid brown leather case, with loop for Sam Browne belt, is supplied for 2s. 6d. extra. Postage and packing 1s. extra (2s. to

places abroad except to British Expeditionary Forces). The inventor and manufacturer is Mr. Chas. Hymans (Dept. 9), 7, St. Andrew's Street, Cambridge.

Mr. John Bell, of Breeze Hill, Bootle, Lancs., builder and contractor, who died on January 13 last, left gross personalty valued at £67,922.

The new Methodist church at Findochry, built at a cost of £1,150, has been formally opened. The plans were by Messrs. La Trobe and Weston, of Bristol, and Mr. W. Hendry,burgh surveyor of Buckie.

The memorial to the late Marquis of Londonderry just unveiled in St. John's parish church, Seaham Harbour, was designed by Mr. William H. Wood, F.R.I.B.A., of South Parade, Newcastle-on-Tyne. It consists of a tablet of white marble with a border of Irish green marble, bearing an inscription and surmounted by a coat-of-arms.

The American Institute of Architects is able to exercise some pressure on Government officials. Among the instances of its influence cited by Mr. Wilcox at a recent meeting held in Washington, D.C., was the new building for the Department of the Interior in that city, which was planned to be faced with brick-work but was changed to a stone-faced building. A strong agitation is being promoted by architects against the proposal to erect on the Mall at the foot of the Washington Monument in the capital a power house with four huge smokestacks.

The New York State Association of the American Institute of Architects, at its annual convention, held in Albany, elected for the ensuing year as president, Frank H. Quinby, of Brooklyn; vice-president, E. S. Gordon, of Rochester; and secretary, Edward L. Tilton, of New York. A committee was appointed to draft a Bill creating a New York State Art Commission having the same jurisdiction over the designs of the State's public buildings and monuments that the Municipal Art Commission now has in New York City. A second committee was appointed to prepare a basic building code for New York State covering the construction of buildings other than factories.

## Our Illustrations.

### PEABODY BUILDINGS, BETHNAL GREEN.

This new block has been erected to complete the Bethnal Green Estate. The estate occupies an island site bounded by Minerva Street, Cambridge Circus, and Centre Street, and the new block is on the corner of Minerva Street and Cambridge Circus. The basement of the building has been arranged as a laundry for the use of the whole estate. The laundry contains steam-heated washing coppers, and the washing tubs have a constant supply of hot water from the boiler in the basement. A hot-water draw-off tap is arranged at the back of the building, where tenants can obtain hot water for their own use in the tenements. In addition to the laundry there is provided in the basement a drying-room, with steam heated drying-horses. A portion of the ground floor has been devoted to baths for the use of the tenants of the estate. There are five four-roomed tenements and four three-roomed tenements in this new block, and each tenement is self-contained and has its own scullery and w.c. Every living room has a ventilated meat larder and cupboard, as a combined fitting, and every bedroom has a wardrobe cupboard. In the living rooms there are the latest pattern portable ranges, with hot water supply to the scullery sink, and in each scullery there is a deep white-glazed fireclay sink and teak draining-board, coal bunker to accommodate 3 cwt. of coal, portable washing copper and gas-cooking stove. The staircases, w.c.'s, sculleries, laundry, drying-room, and baths have tiled dados. The building is of fire proof construction throughout, and is lit by gas supplied to the tenants through slot meters. The elevations have been carried out in red sand-faced bricks and artificial stone, with Luton bricks on the basement and ground floors. The buildings have been designed by Mr. Victor Wilkins, surveyor to the Peabody Donation Fund, and the contractors are Messrs. W. Lawrence and Son, 19, Finsbury Square, E.C.

### HOTEL DE VILLE AND PORTE PICOYS, LOCHES, FRANCE.

Loches arose from a very ancient foundation originating in the monastic establishment of St. Ours, and as early as the sixth century the town possessed the advantage of a castle citadel. Naturally, many interesting historic buildings accumulated as time went on, but few places, unfortunately, have suffered more from the assiduity of the modern restorer, who has done his worst to spoil the architectural charm of some of the best pieces of work in Loches. The streets common to the methods of building old towns on a hill take all sorts of odd shapes, much to the quaintness of these thoroughfares, and this interest is increased by the chain of buildings and bridges connecting Loches with Beaulieu on the other bank of the Indre. Richard Cœur de Lion seized the place in 1194, but the town was recovered by Philippe-Auguste, and ultimately St. Louis bought Loches some half a century later. Subsequently it was visited frequently by succeeding Kings of France, and continued to enjoy the prosperity of a Royal city till the Revolution. The Tower of St. Antoine, a splendid remnant of the Renaissance, belonged to the demolished church of that dedication; it is now used as a belfry, and forms a most conspicuous feature from many directions, and particularly so from the railway station. The Porte des Cordeliers, in the Rue S. Antoine, is the Hotel Nau, dating from the time of Henri II. This building contains some rich tapestries and a chimney-piece surmounted by a bust of Diane de Poitiers. The Hotel de Ville, of which we give a sketch to-day by Mr. Alick S. Horsnell, was built by Jean Beaudoin during the years 1535 to 1543. It abuts on to the venerable town of the Porte Picoys, which dates from the fifteenth century. This gate-house groups particularly well when seen from the undulating street to the right-hand, where it so well dominates the vista. Its walls bear many marks of war-time memories, but the civic building adjoining, set in the angle of the street, escaped much damage in the protected corner next this tower. The masonry of both buildings in the

mellowed grey of time harmonises remarkably well and blend together charmingly, though each differs essentially in style and purpose from the other. A double page of this picturesque composition was given in the BUILDING NEWS for January 20, 1895. The Dungeon of Loches belongs to the twelfth century, and is typical of a Romanesque fortress, and within its confines stands St. Ours Church. Viollet le Duc gives a charming description of this collegiate church, begun by Geoffrey Grise Gouelle in 962 A.D., the nave being the work of Foulques Nerra. Its magnificent portal dates from the twelfth century.

### LONGSTOWE HALL: WATER SOFTENING AND POWER HOUSE.

This photograph, given in continuation of our series of illustrations of this monstrosity and buildings on the estate, shows the tower at the end of some of the administrative premises, comprising a house for the water softening provisions and the electric power used on the property. Though utilitarian in construction, with big brick piers and timber boarding on all sides, the structure is very picturesque and suitable with its simple outside staircase. Last week we gave the doorway leading to the stables from the terrace, and a previous illustration will be found in our issue for February 23 this year. Messrs. John Wm. Simpson, F.R.I.B.A., and Maxwell Aytton, A.R.I.B.A., are the architects.

### THE HEATING AND LIGHTING BUILDING, THE NATIONAL LIBRARY OF WALES, ABERYSTWITTH.

The accompanying reproduction of Mr. Sidney K. Greenslade's working drawing of this administrative building, housing the electric power station of the National Library of Wales for the heating and lighting services, includes a reduced copy of the main plan of the main floor, with sections and elevations drawn to a larger scale. The porter's lodge drawings also given show the two plans of that building, with front and side elevations set out to the same scale as the elevations of the bigger building. It will be noticed that full advantage has been taken of the fall in the site to obtain accommodation for the boiler house, which is partly below the ground line, and this contrivance is greatly assisted by the lifting up of the principal floor level with a terrace in front facing south and west, the building being approached by a wide flight of steps adding much dignity to its external appearance, the structure having a domical roof over the entrance vestibule. The lodge also is cleverly planned and handled in a befitting manner as part of the entire scheme.

### WHITEVALE FOUNDRY, GLASGOW.

In July, 1914, just prior to the outbreak of the War, Messrs. David Auld and Sons, Limited, engineers, Glasgow, instructed Mr. S. B. Lithgow, of Messrs. Brand and Lithgow, Glasgow, to proceed with the erection of this two-flatted workshop on the Hennebique system, to serve as an additional wing to their premises. A second floor can be added when wanted. As the subsoil was made up largely of loosely compacted rubbish and soft mud, it was deemed advisable to erect the whole structure on a reinforced ferro-concrete raft underlying the entire area covered by the building. This raft was strengthened like the ceilings by transverse and longitudinal ferro-concrete ribs and beams exactly like an inverted ceiling. To suit the loading bank requirements, etc., the ground-floor level was made up to 4 ft. 6 in. above the yard level by filling up the space between raft and floor with hard-rammed ashes and moulding sand. The wisdom of the raft addition under the building has been fully justified by increased stability and the absence of any symptoms of unequal settling in spite of the factory floors being loaded with many tons of machine tools and castings, stocked in both flats. The ground floor flat within the walls is 70 ft. long by 30 ft. wide, and height of ceiling 15 ft. The upper flat is also 70 ft. long by 30 ft. wide, with height of ceiling 12 ft. 6 in. The ceilings are 4 in. thick and capable of sustaining a load of 2½ cwt. per square foot. The load test on the first floor was entirely satisfactory. The ample window area en-

sures an abundant supply of light. Each window is fitted on the south side with dark-green blind for use in summer sunshine. Ventilation is provided by a section of each window being fitted at the lower edge and opened or closed by the usual rack and pinion quadrant with cord attachment. The spaces under the windows to the floor are filled in with brick. The ceilings are supported longitudinally by three ferro-concrete columns 10 in. by 10 in. The new extension is erected for the manufacture of semi-rotary wing pumps, which, until the outbreak of war, were made almost exclusively in Germany, consequently the building to which attention is now directed, would be of interest from the patriotic standpoint, apart from its structural merits. The firm mentioned have been engaged since the year 1850 as engineers, brassfounders, ironfounders, and makers of patent pressure controlling valves, and it is to be hoped that their enterprising action for the capture of trade from the enemy may meet with every success. The building at the far end of the illustration projecting beyond the purely ferro-concrete factory consists of an additional wing to the offices, including, on ground floor, new entrance hall, waiting room, gate-house, etc., and, on first floor, a new drawing office and consulting room, with a strong room in both flats. The outer walls of this extension are of Cleghorn brick, which supports the ferro-concrete ceiling and roof, and the floors are finished off with red Dolomiet. Behind the new factory over the fitting shop, but not included in the illustration, there has been substituted for an old wooden-slatted roof a new roof in ferro-concrete, 90 ft. long by 70 ft. wide with a lantern light in the centre 43 ft. by 24 ft. This roof is intended to form the first floor of a new flat whenever that is found to be necessary. The contractors for the ferro-concrete work were Messrs. Gray's Ferro-Concrete Contracting Co., Ltd., 57, Harriet Street, Pollokshaws, Glasgow, and the work was carried through under the personal supervision of Mr. S. B. Lithgow, architect, 131, West Regent Street, Glasgow.

The death is announced, at the age of sixty, of Mr. James B. Robertson, road surveyor for the Dundee district of Forfarshire. Mr. Robertson was for nine years assistant-surveyor in the Cadder district of Midlothian. He was then appointed road surveyor of Western Perthshire, and upwards of twenty years ago he was appointed Dundee district surveyor.

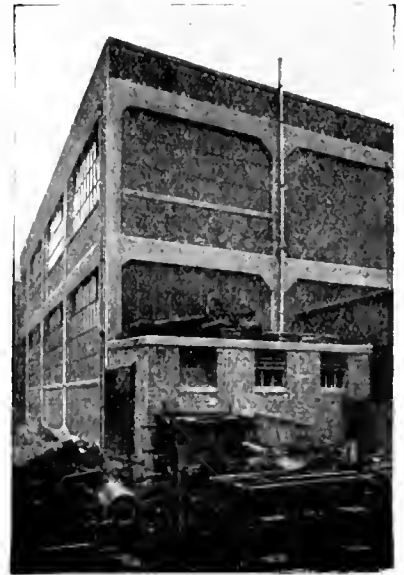
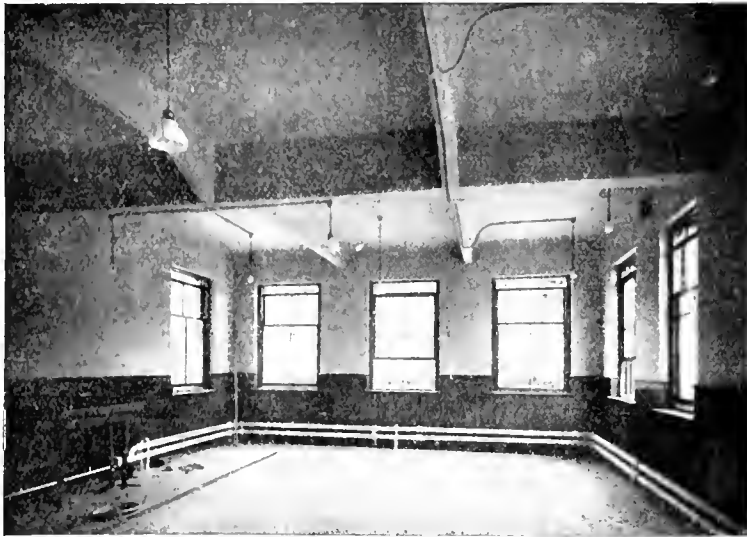
Extensive improvements have been made at Kilmagh Roman Catholic Church. The works include new marble altars, communion rails, marble font, decoration of the church, and an extension of the side aisles. The architects were Messrs. W. H. Byrne and Sons, Dublin. The decorations were executed by Mr. Egan, of Bray.

At the annual meeting of the Washington State Chapter, American Institute of Architects, held recently at the Seattle Architectural Club, the following officers were elected for the coming year: President, Mr. Arthur L. Lovelock, Seattle; vice-presidents, Messrs. Joseph S. Cote, Seattle; George Gove, Tacoma; and Albert Field, Spokane; secretary, Mr. Daniel R. Huntington; and treasurer, Mr. Ellsworth P. Storey.

Another section of the Tower of London, the White Tower or Central Keep, was opened to the public for inspection for the first time on Monday. Access is now given to practically the whole of the White Tower, including the armouries (which have been rearranged), the crypt of St. John's Chapel, Sir Walter Raleigh's cell, and the Little Ease, where, according to tradition, Guy Fawkes passed his last hours. In the other basement chambers, hitherto used as military stores, many old cannon and mortars are displayed.

For the memorial to Edith Cavell, which Sir George Frampton, R.A., at once offered to design free of charge, the sculptor has executed a bust-portrait to serve as a basis for the statue, and this he is sending to Burlington House. The memorial will be placed on the island site in Claring Cross Road between the National Portrait Gallery and St. Martin-in-the-Fields Church. The figure of Edith Cavell, in nurse's uniform, is to be of white marble, 8 ft. high, against a silver grey granite column. Dominating it will be a figure, symbolic of Justice and Humanity, guarding an infant.



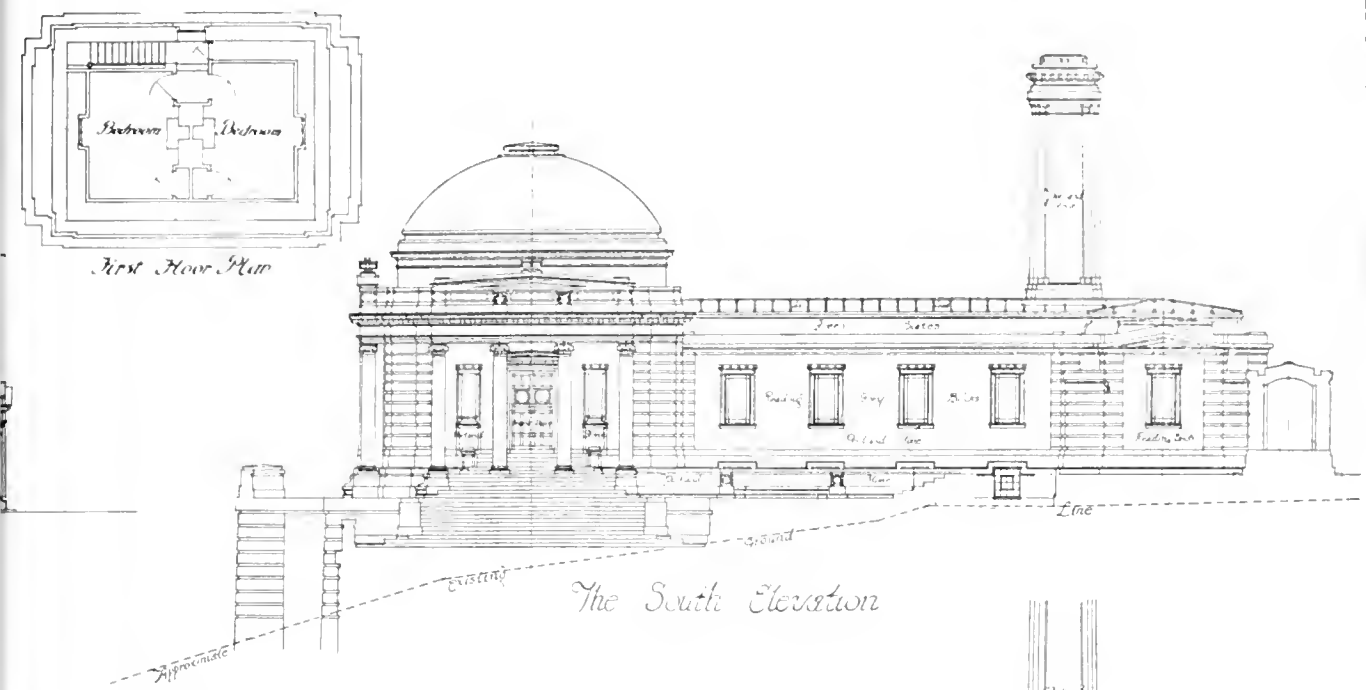


WHITEVALE FOUNDRY, GLASGOW (IN FERRO-CONCRETE).  
Mr. S. B. LITHGOW (Messrs. Brand and Lithgow), Architect.

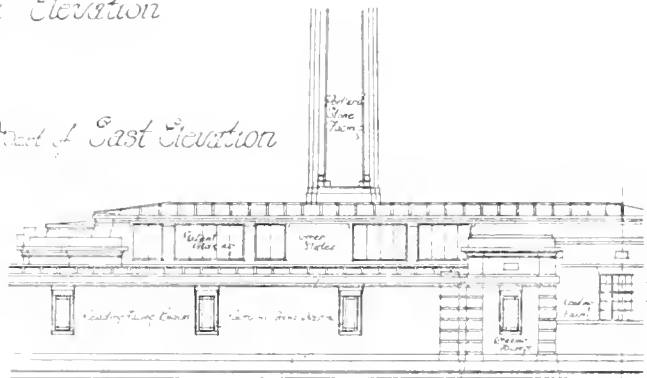
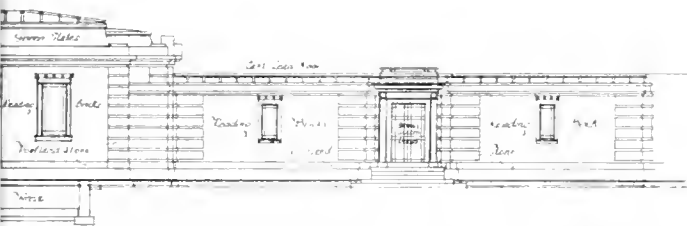








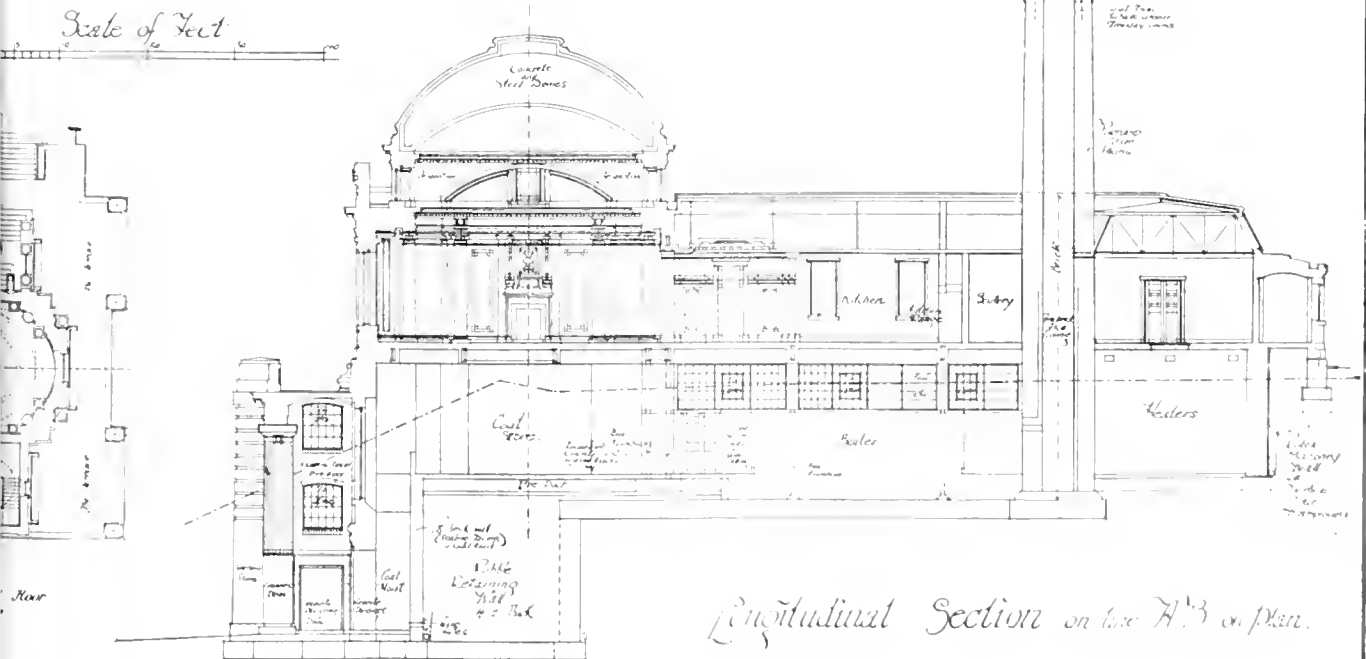
Section on line C-F on plan



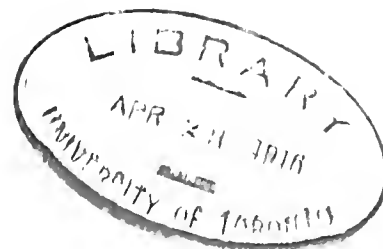
The National Library of Wales, Aberystwyth  
The Heating and Lighting Building

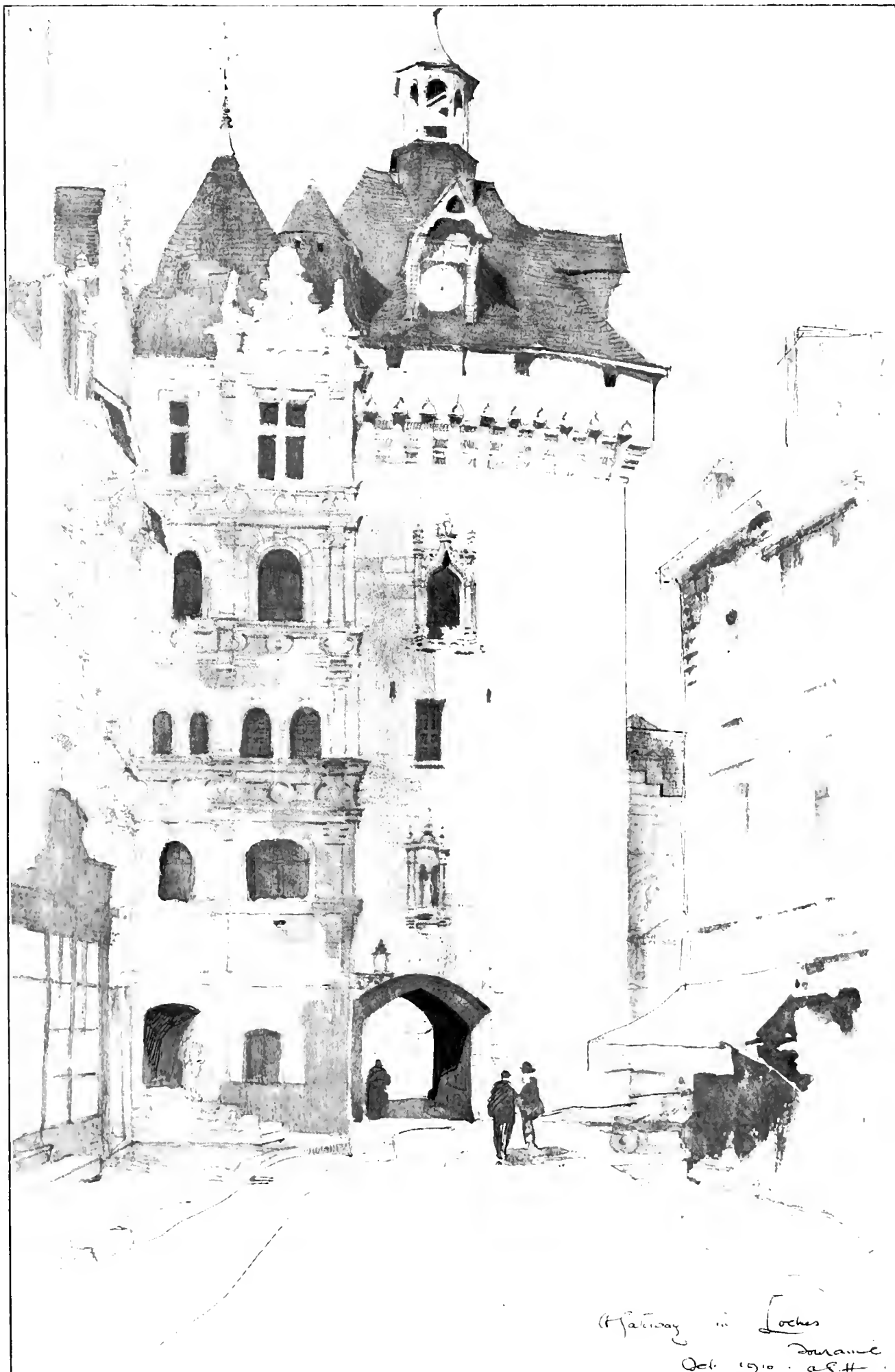
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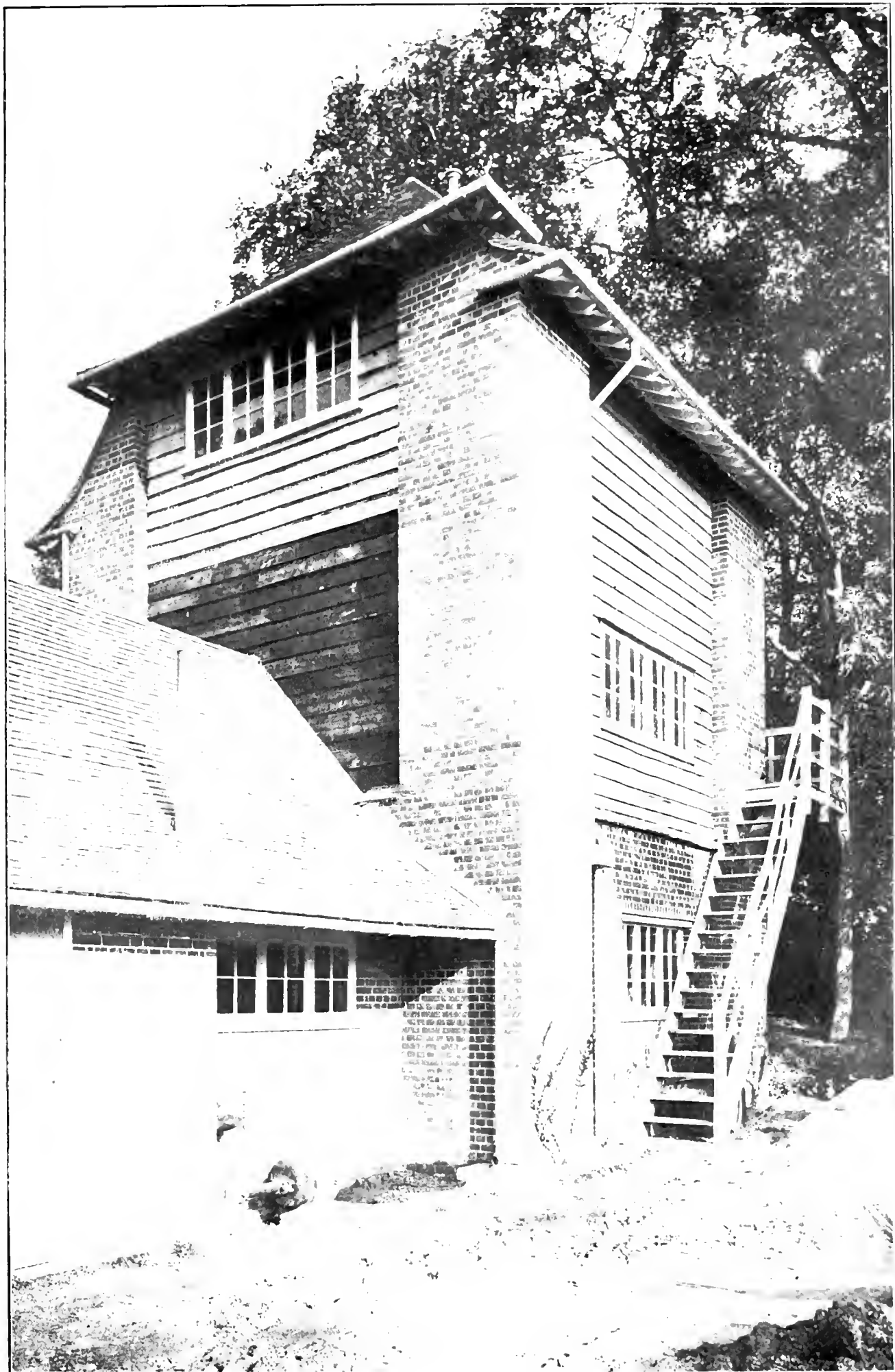




HOTEL DE VILLE AND PORTE PICOYS, LOCHES, FRANCE.

Drawn by MR. ALICE G. HORSNELL.

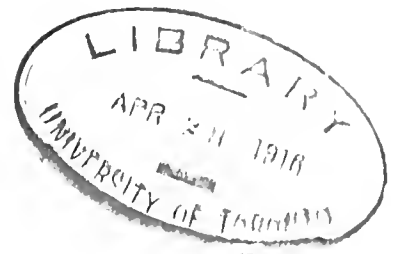


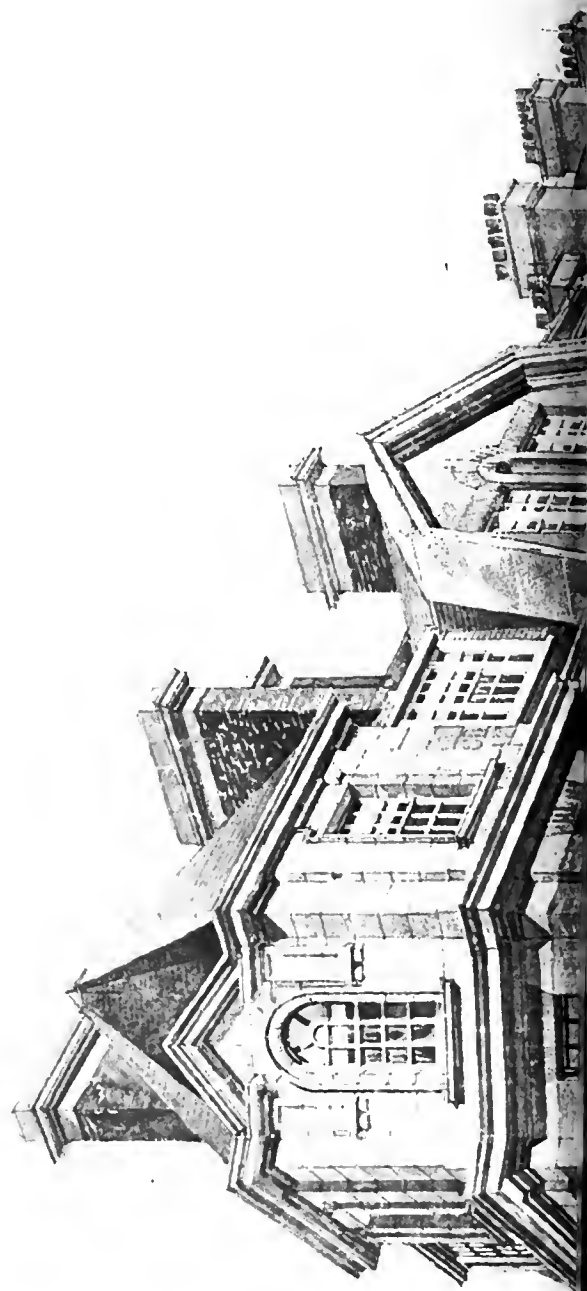


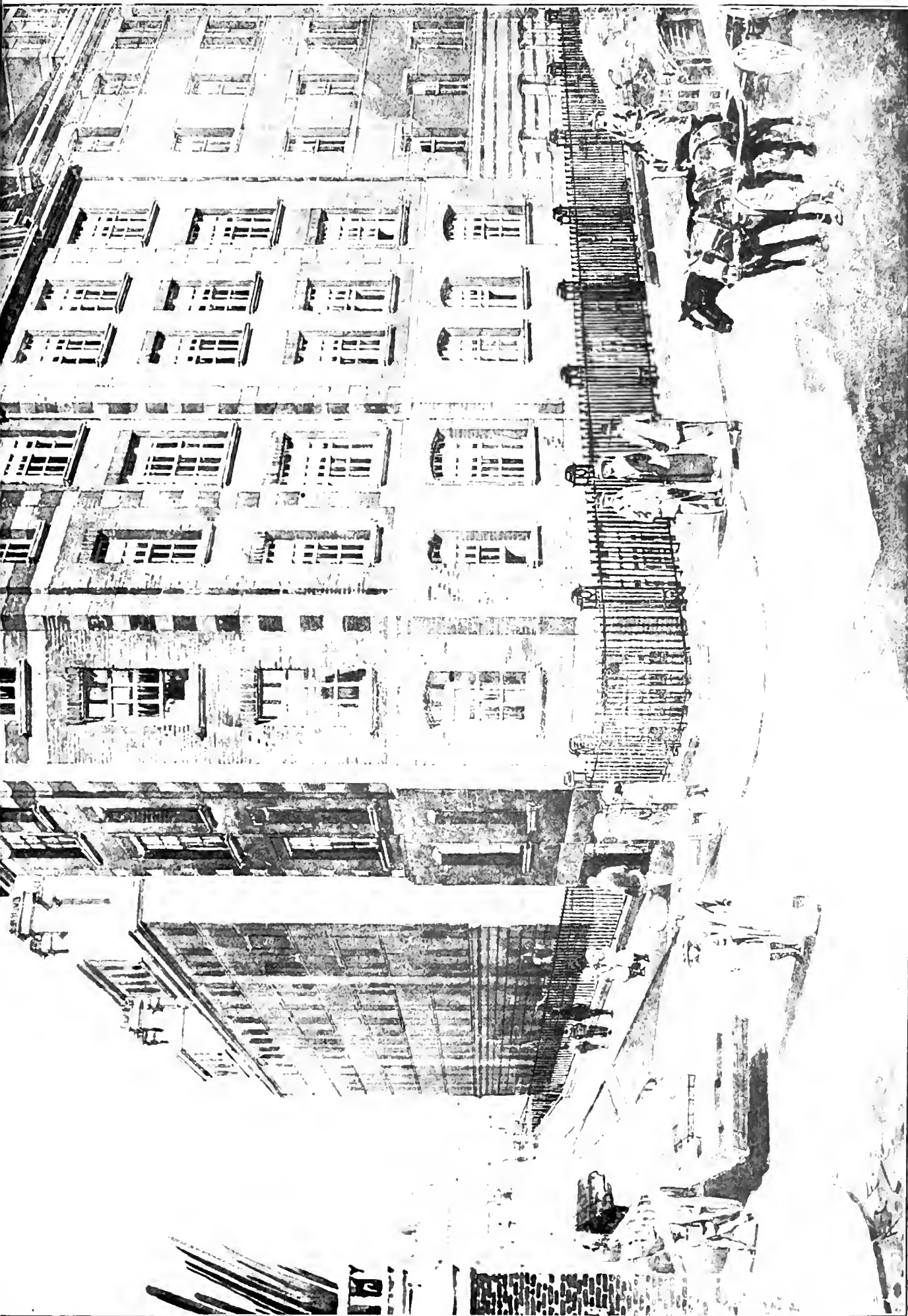
*Thos. Lewis, Ltd., Photo.*

LONGSTONE HALL, CAMBRIDGESHIRE: WATER SOFTENING AND POWER HOUSE.  
Messrs. JOHN W. SIMPSON, F.R.I.B.A., and MAXWELL AYRTON, A.R.I.B.A., Architects.







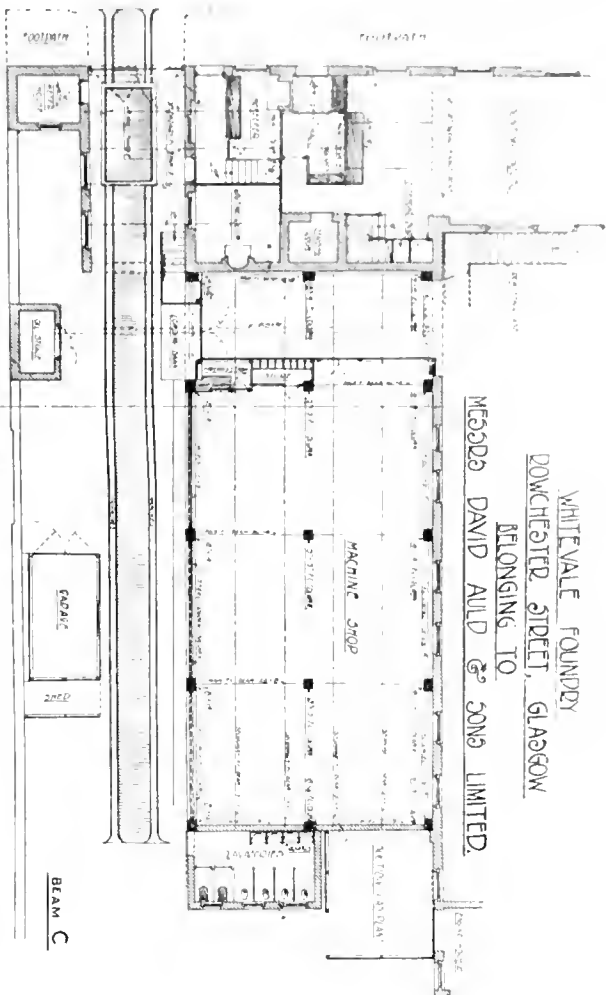


NEW BLOCK OF PEABODY BUILDINGS, BETHNAL GREEN, LONDON. N.E. ME. VIEW FROM N.W. CORNER.

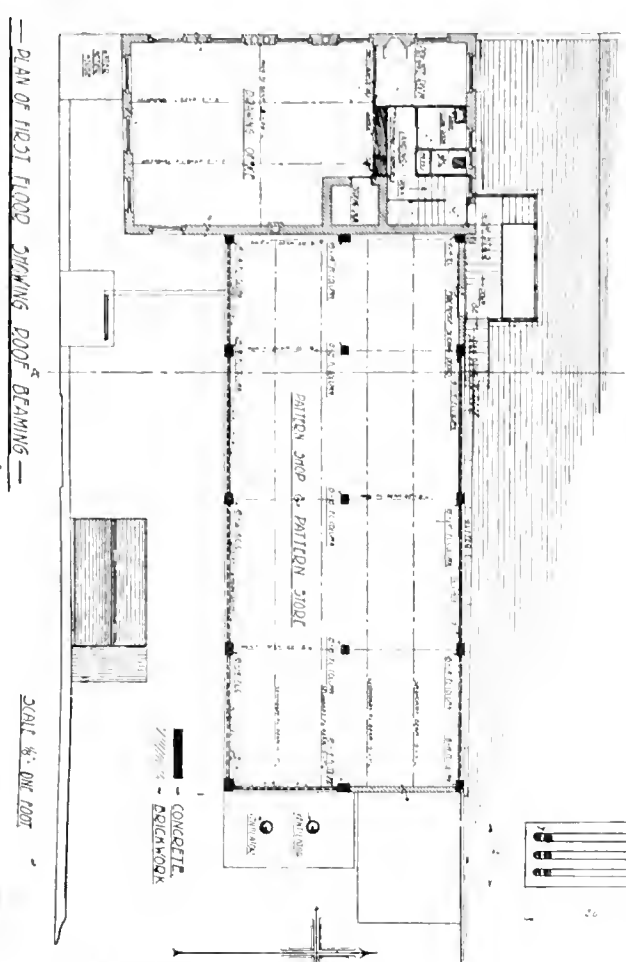




WHITEVALE FOUNDRY  
DOWCHATED STREET, GLASGOW  
BELONGING TO  
MESSRS DAVID AULD & SONS LIMITED.

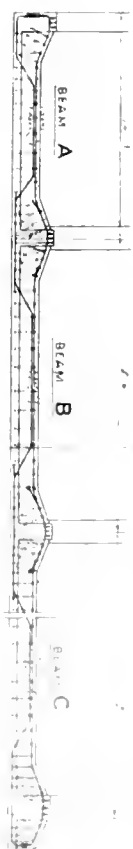


— PLAN OF GROUND FLOOR SHOWING FIRST FLOOR DRAINING —



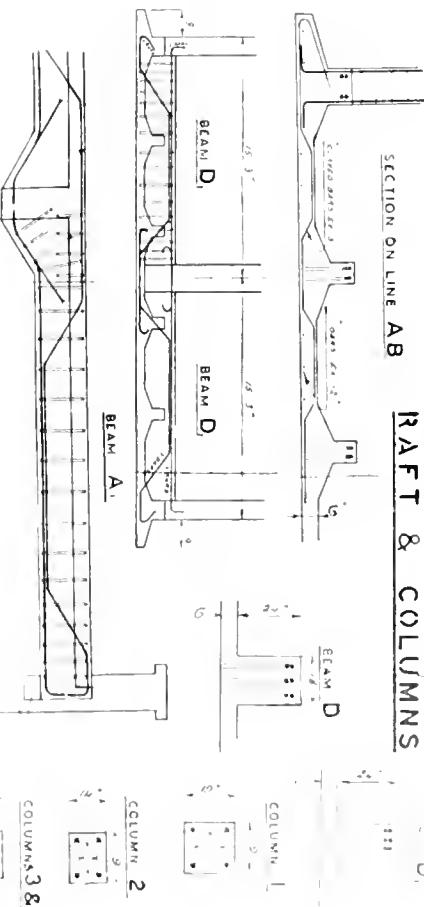
— PLAN OF FIRST FLOOR SHOWING FIRST FLOOR DRAINING —

SCALE 1/4" = 1' 0"



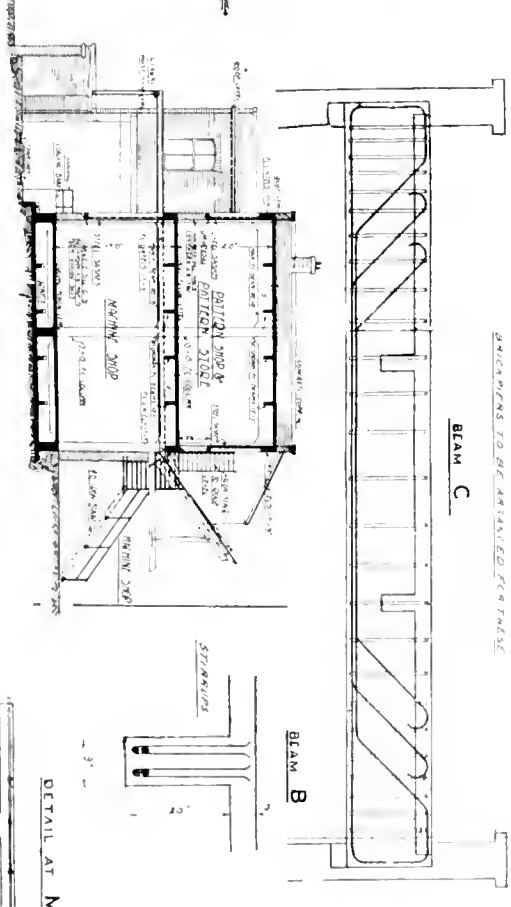
SECTION ON LINE AB

RAFT & COLUMNS



NOTE

BEAMS FROM BEAMS WERE REINFORCED  
TO FLOORS GIVEN AT RISE ABOVE  
BEAM (SEE PLAN) TENDERS AND  
DIMENSIONS TO BE ANTICIPATED FROM THESE



SECTION AB

SCALE 1/4" = 1' 0"

WHITEVALE FOUNDRY, GLASGOW (IN FERRO-CONCRETE).—MR. S. B. LITIGOW (Messrs. Brand and Litigow), Architect.

## Corrente Calamo.

The extraordinary general meeting to-morrow evening of the Society of Architects will doubtless confirm the resolution passed on March 16 to alter the Articles of Association. The chief alterations are the substitution of a new disciplinary clause in the place of the present Article 13, the giving to country members a definite proportionate representation on the Council, and the provision for more continuity of service on the Council as a whole, while introducing fresh blood every year in the proportion of one-third. The new disciplinary clause is in principle identical with the present one. The machinery is somewhat different, and while it gives the Council wider powers than before, it also provides that the members concerned shall have proper opportunity of answering any charge brought against him. The clause has been drafted by the society's solicitor and settled by counsel, so that a legal action ever has to be taken thereunder, no fault should be found with the machinery from a legal point of view. The procedure may appear a little complicated to the lay mind, but the Society has been advised that nothing less would meet the case. We are glad to notice that the Society takes pains to publish, "either in the Society's Journal, or otherwise, the names and addresses of expelled or suspended members"—taking it for granted that "or otherwise" does not mean merely announcing the fact at a meeting, and forbidding any report thereof, as is the practice elsewhere.

There is little to be said by us about the Budget this year. What it does is necessary, and the defects in method and detail are the usual results of departmental ignorance or unconcern, and consequent unfairness. The apportionment of the railway ticket and amusement taxes are decidedly unfair, both taking from the pockets of poor men—who are already disproportionately taxed—far more than from those of the rich. The match tax is a righteous and expedient one. We failed years ago to understand the rather factious and altogether interested opposition to Mr. Robert Lowe's inclusion thereof in his well-remembered Budget of 1871, and the waste of matches to-day is infinitely more wanton than it was then. In those days few people dreamed of wasting a match indoors: the deftly twisted paper "pipe lights" filling their neat receptacle on every mantel piece. Even in the streets a match was less frequently struck, and the frugal smoker availed himself of the thoughtfully provided gas jet outside the shop of the obliging tobacconist, enclosed in its glass shade, bearing the kindly invitation "Pro bone publico," and evoking the grateful remembrance of the user and probable future customer. Today, especially on the workmen's trams and trains, the average smoker strikes five matches to one pipe: the result, by the end of the journey, being an accumulation on the floor of the car or compartment of enough timber to build a decent fence with if it were not in such small pieces. The litter in the streets only rivalled in amount by the tons of wasted paper in the shape of tramway and bus tickets, is equally reprehensible, and a much heavier tax would, perhaps, have aroused the thoughtless to a sense of their extravagance. We hardly expect Mr. McKenna's modest levy will.

But the big blot on the Budget is its failure to fulfil the oft-repeated promise to repair the mischief wrought by Mr. Lloyd

George's pernicious Finance Act of 1909-10. The shameful injustice to the builder then perpetrated has so often been denounced in these pages that some will regard this as a stale protest. If any such think we have exaggerated matters, let them get a copy of the third edition of a pamphlet entitled "The People's Housing," by Mr. A. W. Shelton, F.A.I., which is issued by the Nottingham and District Property Owners and Ratepayers' Association, Burton Buildings, Parliament Street, Nottingham. Therein once again is set forth, temperately and lucidly, the fatal effects of the taxation of unearned increment on site values, the ruin it has inflicted on builders and the building trades, and the hardship its direct consequence—the present shortage of houses all over the country, and unparalleled in our history—is causing. Few people realise that of all privately occupied dwellings in Great Britain more than two in every three are of the annual value of £15 or less (5s. 9d. weekly), and more than four in every five of the annual value of £20 or less (7s. 9d. weekly). In other words, upwards of 30 per cent. of all inhabited dwellings in the country are obviously the homes of the people. Practically ninety eight in every hundred of such dwellings have been produced by private enterprise, hitherto regarded a national staple industry employing tens of thousands of the population. This has only been possible by an abundant supply of capital on mortgage at low interest, and by the purchase for occupation or investment by thrifty people and relatively small capitalists of nearly all houses so built. Since the advent of the "People's Budget" purchasers at prices giving a living profit to the builder have practically ceased, and the bulk of the capital hitherto obtainable on mortgage is withheld and mainly invested abroad. Every week from 1,500 to 1,600 new houses are required to meet the normal growth of the population. In addition, at least 600 new houses are each week urgently needed to replace worn-out dwellings, or to mitigate overcrowding in congested areas. To provide these requires an annual expenditure of from £25,000,000 to £50,000,000 sterling. Under existing conditions this enormous sum is no longer obtainable from private sources, and the position cannot materially improve unless and until Part I. of the "People's Budget" is expunged from the Statute Book or drastically amended. The only alternatives are enormously increased rents, or the State finding the money and building the houses at a loss. In the ten years prior to the introduction of this ill-starred legislation over 1,113,000 houses were built, in the four succeeding years only 312,000—a falling-off of 33,000 per annum. House building has now practically ceased in many localities, and taking the country as a whole it is doubtful whether more than 30 per cent. of the absolutely essential dwellings are now being erected.

With rare exceptions, builders are not wealthy, and they can only build if and when there is a ready sale at fair prices for the houses they produce. Relatively few are in a position to retain, or do retain, the houses they provide, and if they were or did, it is obvious that their limited resources would soon be exhausted, and that provision of houses by them would necessarily cease. Again, as a rule, in addition to the cost of building, sewer, and street expenses, the builder has to provide capital for the acquisition of the site, as the great majority of cottages are erected on freehold land. Having regard to the fact that in the most im-

portant urban centres the actual price thus paid for the land broadly represents 20 per cent. of the total cost of, or price realised for, the house and land, it will be seen to what a material extent this affects the financial position. Before 1909, financial help for the builder was always obtainable—there were, as a rule, several willing lenders for one borrower. Then came the avalanche of Form IV, on unsuspecting occupying owners and thrifty people of relatively small means who, by investing hardly-earned savings and by the use of mortgages almost thrown at them, had alone made possible the provision of the necessary houses for the people at low rents. The immediate effect was disastrous, and within a few months the position became so acute as to amount to a grave calamity. From being regarded as the premier and most stable of the country's securities, hitherto eagerly sought after, house property and its mortgages became the most despised and rejected of them, with the inevitable result that nearly every owner affected was keenly anxious to sell and no one was willing to buy at fair and reasonable prices. Almost immediately banking facilities and assistance by solicitors for building operations were greatly limited, or stopped altogether. The greater proportion of the capital always before readily available for mortgage or purchase was diverted into other channels, mainly abroad, and for the small sums still obtainable for mortgage increased interest was demanded, and perforce had to be paid.

Mr. Walter Long well asked not long since, "Does any one of us think, with our knowledge of this country, whether urban or rural, that we are not at once bound to admit that this shortage of houses exists almost everywhere, and that it is at this moment, and has been for a long time, not only the gravest of our social problems, but one most difficult to deal with?" Most difficult, indeed! As Mr. Shelton insists, the highest interests of the State, and of humanity itself, demand that anything and everything possible should be done to restore public confidence in house property and its mortgages as a leading stable security: to foster and encourage private house building in every conceivable way, and to conserve the enormous existing interests at stake in house property of owners and mortgagees alike. Unhappily, the harm already done can never wholly be remedied, nor can there ever be a return to the conditions existing prior to 1909—but the mere stroke of a pen would bring about the removal or the alteration of the legislation responsible for the calamitous results of Mr. Lloyd George's "People's Budget," only second—if, indeed, second—to those of the war. And the worst of it is that legislation has been, even from its author's point of view, the most ghastly failure financially. From 4,500 to 5,000 officials have been employed, and roundly £750,000 per annum expended on the work, yet the financial results, which it was stated would pay the cost of Old Age Pensions and "Deadweight," have been almost negligible. Legislative redress has been thrice promised; and yet, once again, the opportunity has been shirked, and every elector will remember it presently. Meanwhile builders are idle, and the people increasingly homeless.

And will be, till we get a Government that will do justice, in spite of such well-conceived efforts as those of the National Congress which assembled yesterday at Caxton Hall at the invitation of the National Housing and Town-

Planning Council, and which closes on Friday. As we have previously announced, the questions for consideration embrace the preparation of housing schemes for the building of urban and rural cottages, to be put into operation at the close of the year so that the danger of serious unemployment in the building trades may be avoided; the question of financial aid from the Government; the development of the rural resources of the kingdom, and the provision of homesteads as an essential part of the equipment of small holdings; the preparation of town planning schemes, in anticipation of future developments, and more especially schemes for the construction of new arterial roads, playgrounds, and other open spaces, so that if employment is needed for unskilled workmen at the close of the war these workmen shall be employed at tasks of real service to the community; the preparation of schemes for settling disabled soldiers and sailors on the land, and of projects for afforestation, and for the reclamation of waste lands; the possibility of adopting new and cheap building materials and securing economies in the design of cottages, provided that the essential standards of good building construction and of the wholesome environment of dwellings are not impaired. We hope the architects who are co-operating will emphasise the last mentioned topic. So far, we regret to say, the "possibly" has by no means been practically demonstrated very often. The Government itself is one of the worst sinners at the moment at Well Hall, where it is building its houses for Arsenal workers in direct defiance of Acts of Parliament.

We are very glad to report that the Liverpool City Council at their meeting last Wednesday agreed to rescind their resolution of March 1 to the effect that no autumn exhibition be held until the year after the termination of the war. It was further agreed that the autumn exhibition for 1916 be held in accordance with the offer from Mr. F. C. Bowring and other gentlemen to pay all the costs of such exhibition. The whole of the proceeds will be given to public objects, one-half to war relief funds and the other half to the purchase of pictures for the permanent collection. We felt sure this would be done, and we heartily hope all concerned will do their best to make the exhibition a success, in recognition of the generosity of those who have made it possible.

A pleasing feature, the gift of Mr. Alfred Buxton, L.C.C., has been added to the Embankment Gardens, just opposite the Savoy Hotel, in the shape of a lily pond and miniature fountain, which, when the lilies grow and bloom, will enhance the delights of the well-kept pleasure, in which so many of us find a rest and refuge from the daily grind. Then, probably, some will still reserve their crumbs for the sassy sparrows, and not scatter the pellucid surface of the water therewith in mistaken kindness to the fish which, as yet, fail to rise to the surface.

At Blackrock, Co. Dublin, public baths and wash-houses and two groups of artisans' dwellings are being carried out for the urban council. Messrs. Donnelly and Moore, of Dublin, are the architects, and Mr. Louis Monks, of Blackrock, is the builder.

The statue of Queen Victoria, which has been executed by Mr. A. Bruce-Joy for the Government of British Columbia, has lately been placed in the Royal Exchange, London, and will remain on public view from to-day (Wednesday) until the end of the war. It is 13 ft. high, and represents the Queen at about 25 years of age, in the robes of the Garter, with the Crown and sceptre.

## Correspondence.

### HOUSES CONVERTED INTO FLATS.

To the Editor of THE BUILDING NEWS.

SIR, At the present time, when many middle-class houses are being converted into flats, each to be separately occupied, it would be a great convenience if some definition of a "new building" could be adopted by local authorities which would include the alteration or adaptation of existing buildings to prepare them for separate occupations.

If this were the case the requirements for flats, viz., fire resisting floors, stairs and partitions dividing the separate occupations, could be enforced. At the present time the power to enforce them appears to depend on the amount of such alteration, whereas it ought solely to be governed by the fact that persons or families not in communication with one another are to occupy the different parts of the same building.

Many houses originally in one occupation are now subdivided as to tenancy only. Very little if any alteration has been made, and they have become veritable death-traps, the occupants being entirely at the mercy of any one careless person on the premises. I shall be glad to know whether any of your readers are acquainted with an urban district (not the metropolis) where any effectual remedy for these unsatisfactory conditions has been devised.—Yours obedient servant,

BUILDING SURVEYOR.

### OBITUARY.

The death has occurred at Dundee of Mr. Leslie Ower, a well-known architect and civil engineer, in practice in Whitehall Street, Dundee, as the senior partner in the firm of Messrs. Leslie Ower and Allan, at the age of sixty-five. Mr. Ower was trained in the office of his father, who at the time was harbour engineer. He entered into partnership with his older brother, Mr. Charles Ower, and the firm subsisted for many years and carried through many public and private undertakings. He was actively engaged at business until the beginning of the present year, when he retired. He was an extensive traveller, and possessed great knowledge as a valuer of land. He had been a Fellow of the Royal Institute of British Architects since 1890, and some years since, when president of the Dundee Institute of Architects, served on the council of the former body.

Mr. Albert Emmanuel Smith, M.S.A., of Larkhall Rise, Clapham, S.W., recently died, after a long illness. He was fifty-four years of age, and received his early training in the offices of Messrs. Hunt and Steward, of Parliament Street, S.W., with whom he remained for over thirty years, having been for many years in sole charge of all architectural works. He had been a member of the Society of Architects since 1907.

Lieutenant Adrian I. Hardman, of the Royal Fusiliers, who was born on July 14, 1890, was the only son of Mr. T. and Mrs. E. L. Hardman, of Eastcote, Northaw, Potter's Bar. He was educated at Christ's Hospital and the Architectural Association, where he gained the fourth year travelling studentship, and had passed his intermediate examination of the R.I.B.A. He was articled to Mr. F. R. Farrow, F.R.I.B.A., and served his apprenticeship with Messrs. Sir Ernest George, A.R.A., and Yeates. He subsequently went to Paris, where he held a good appointment, and was studying for the Ecole des Beaux Arts when war broke out. He then joined the Inns of Court O.T.C., and obtained a commission in the Royal Fusiliers (Special Reserve) in February, 1915, and was appointed bomb instructor. In February last he was promoted to Lieutenant and went to the front, where he was wounded on March 27 and died on March 30.

The late Mr. Kershaw Peters, of Galway, was articled to Messrs. Gregg and Detmar, of London, and afterwards served in the P.W.D. Transvaal, and later as assistant

with Messrs. Henderson and Pollard, of Auckland, N.Z. In 1911 he passed the Society of Architects' Qualifying Examination for Membership, and was admitted a member. Shortly afterwards he joined the staff of the Technical School at Galway as Instructor in Building Construction, at the same time entering University College with a view of taking an engineering degree. He passed his first examination in 1912 with honours, and was awarded a way to victory success when war broke out. Although he had a young wife and child, he volunteered, joining the colours in November, 1914, as a sapper in the R.E., and spending the summer of 1915 on the western front. Early this year he had been home on leave, and was wounded shortly after his return. He died at a base hospital on February 12, at the age of thirty-four.

Lieutenant Charles Cleland Harvey, Argyll andutherland Highlanders, who has died of wounds, was the son of Mr. Robert Harvey, 4, Bute Mansions, Glasgow. He was thirty-four years of age, was an architect by profession, and, before receiving his commission, was employed in the office of Sir J. Burnet, LL.D., R.S.A., F.R.I.B.A. In his hobby he took a particular interest, and was the author of a book on the St. Andrew's Cross as the national arms of Scotland. He had also been engaged in compiling a calendar of Yester manuscripts. Well known in antiquarian circles in Glasgow, he was an active member of the Provand's Lordship Club.

Lieutenant Allan H. Newton, Middlesex Regiment, who has died of wounds, was the son of Mr. T. E. Newton, of Morn Dale, Berewicke Road, Winchester, head of the firm of Gale and Newton, land and estate agents and collectors to the Hospital of St. Cross, Winchester. Lieutenant Newton, who was twenty-one years of age, was educated at Bradford College, and joined the Middlesex Regiment in May last year. He was in the Government Land Valuation Department.

Second Lieutenant Arthur Gordon Hugh, R.E., previously reported missing, now officially reported killed, aged thirty years, was the only child of Mr. Arthur H. Hugh, a civil engineer, at present engaged on the Welland Canal, Ontario, and nephew of Sir Forrest and Lady Fulton. He was educated at University College School and Christ's College, Cambridge, and after taking his degree became one of the engineers on the Bombay and Baroda Railway. At the expiration of his three years' contract he rejoined his father in Canada, and in May last came to England and was given a commission in the Royal Engineers.

Second Lieutenant William Norman Thomas, Royal Flying Corps, who was killed in action on Saturday, was director of W. S. Thomas and Sons, contractors, Oswestry. Lieut. Thomas, who was aged twenty-eight, was educated at Wellingborough, and joined the Montgomeryshire Yeomanry as a trooper in September, 1914, being promoted sergeant despatch rider in the following December. He was given a commission in the Shropshire Light Infantry in June last, and took the flying certificate at Hendon in the following month.

The directors of the London and North Western Railway have appointed Mr. H. P. M. Beames, manager of the Crewe railway works.

It is reported from Madrid that, owing to the high prices of material, all the borders of Spain contemplate a lock-out, which would throw 500,000 men out of work.

Mr. H. Unwin, a member of the Clerks of Works' Association who regularly attended its monthly meetings at Carpenters' Hall, and who had supervised some important buildings during erection, has died from an attack of bronchitis.

It was reported at the meeting of the Council of Bristol University that arrangements had been made with the Ministry of Munitions for Mr. O. J. Williams, Lecturer in Electrical Engineering, to take up Government work during the period of the war. A letter from Mr. F. J. Broadbent, Lecturer in Civil Engineering, was read resigning his appointment, as he had accepted another post in Huddersfield.

## Building Intelligence.

**HOUSING IN VALE OF LEVEN AND RENTON.**—At a meeting of the Western District Committee of Dumbarton County Council on Wednesday it was reported that at a recent meeting of a sub-committee appointed to consider as to providing additional housing accommodation in the Vale of Leven and Renton special districts information submitted by the representative of the Local Government Board and plans of houses were carefully considered. Additional information regarding sites and details of costs were also considered. The committee recommended that the offer made by the Board be favourably entertained, and that the local authority continue the remit to enable the sub-committee to obtain and report upon sites, plans of buildings, estimates, roads of access, water supply, drainage, lighting, and maximum loan obtainable, rate of interest therefor and period of repayment, together with estimated rents likely to be obtained under normal circumstances for provided houses. It was agreed to accept their recommendations.

**LONGNIDDRY, N.B.**—A meeting was held in the County Buildings, Haddington, on Thursday, under the auspices of the Scottish Veterans' Garden City Association, the object of which is to provide for the housing and care of permanently disabled soldiers and sailors. Mr. G. A. Comer, J.P., Craigielaw, factor to the Earl of Haddington, who is president of the association, occupied the chair. It was reported that a site at Longniddry had been selected on which to develop the housing scheme, and that of the £12,000 required for the first section of the undertaking between £4,000 and £5,000 had already been secured—an amount approximately sufficient to build about forty houses with workshops. It was proposed to charge a nominal rent to provide for the maintenance and upkeep of the houses. Plans had been prepared by Mr. McIntyre Henry, architect, Dean of Guild of Edinburgh, and it was proposed to make a beginning with the building operations shortly. Most of the blocks will consist of two houses each, but there will be a few blocks of three. The houses proposed will be of three sizes:—(a) One room, kitchen, scullery, and other necessary accommodation; (b) two rooms, kitchen, scullery, etc.; (c) three rooms, kitchen, scullery, etc. The walls will be built of two thicknesses of brick, with a hollow space between, and the exterior surface of the walls will be covered with cement harling. Some of the living rooms or kitchens will be 15 ft. 6 in. by 11 ft. and 13 ft. by 10 ft. 6 in. Five different exterior designs of cottage architecture will be adopted in connection with the three types of houses, and further variety will be given by covering some of the roofs with slates and others with tiles.

**ROSYTH.**—The Scottish National Housing Company, Limited, have presented plans at Dunfermline Dean of Guild Court for the erection of an additional 239 dwelling-houses at Rosyth. With a recommendation by the Court that more facilities for household washing purposes might be provided, the plans were passed, as were also plans for the making of streets and the provision of drainage. The estimated cost of the houses for which warrant was granted is between £60,000 and £70,000.

Permission has been obtained from the Home Office to issue an appeal for funds for the rebuilding of St. Augustine's Mission Church, Leytonstone, Essex, the first church in the Province of Canterbury to suffer from Zeppelins. The building had not been insured.

The Crystal Palace School of Engineering, after a tenancy of over forty years, vacated on Thursday the premises at the South Tower. The next term will be opened at a new home on Anerley Hill. Mr. J. W. Wilson, the Principal, mentioned that 2,000 students had passed through the school. Upwards of 200 old and present students were on the Roll of Honour in connection with the war, and four had gained the Military Cross.

## PROFESSIONAL AND TRADE SOCIETIES.

**THE ARCHITECTURAL ASSOCIATION.**—We were refused admission to the meeting of the Architectural Association on April 3, and told the meeting was private. The following report was sent by the secretary on Thursday morning, a day after publication of our last issue:—An ordinary general meeting of the Architectural Association was held at No. 37, Great Smith Street, Westminster, S.W., on Monday, April 3, 1916, at 4.30 p.m., Mr. H. Austen Hall (president) in the chair. The president proposed that a vote of condolence be passed to the relatives of the following members who had fallen in the war since the last meeting of the association:—Messrs. H. E. J. Davidge, Maurice Day, and Henry Wood. The motion was carried in silence. Two nominations were announced, and the following gentleman elected a member: Mr. C. J. Kennedy, 49a, Longridge Road, Earl's Court, S.W. The following reinstatement was announced: Mr. A. K. Chaudhuri, 113, Elgin Crescent, Holland Park, W. The president read the Council's nominations for the House List for the ensuing session, and stated that formal nominations would take place at the next ordinary general meeting, which would be held on May 1, when it would be competent for any two members to nominate further candidates. It was announced that the late Mr. H. L. Florence had bequeathed to the Architectural Association the sum of £1,000 for the purposes of the association, and a further £1,000 to found and provide an annual prize to be described by or associated with Mr. Florence's name.—We suggest that if the Architectural Association intends to hold its meetings in private in future, and wishes its communicated reports to appear, it should send them in time for our current issue.

**EDINBURGH ARCHITECTURAL ASSOCIATION.**—The members of the Edinburgh Architectural Association have paid a visit to St. Mary's Episcopal Cathedral, Melville Street, and were shown over the building by Dean Wilson. Various features of interest in the cathedral, which was erected from plans by Sir Gilbert Scott between 1874-1879, were pointed out. The new western towers, designed by Sir Gilbert's son, the late Mr. John Oldrid Scott, the northern of which is still in course of erection, were also inspected. The party ascended to the bell-ringers' tower, in the central tower, from the outer gallery of which fine views of the city were greatly admired.

**LIVERPOOL ARCHITECTURAL SOCIETY (INCORPORATED).**—The 68th annual meeting of this society will be held on Monday next, the 17th inst. The annual report of the Council, then to be submitted, states that the present membership of the society consists of 60 Fellows and 46 Associates, a total of 106 (as compared with 112 last year, 129 in 1914, and 131 in 1913). There are also three Hon. Fellows, eight Hon. Associates, and seven Students. The death of Mr. James M. Hay, who passed away on October 13, 1915, in his ninety-second year, removes the last link with the early history of the society. Mr. Hay joined the society as a Professional Associate as long ago as 1850, when the society was in its second year. He was for many years an active member of the Council, and filled the office of president in 1860-2, and again in 1877-8. For the past fifteen years he has lived in retirement. In connection with the firm of Messrs. W. and J. Hay, of which he was the last survivor, Mr. Hay was responsible for the erection of a number of local churches, included among which were the parish church, Wallasey, and Trinity Church, Cloughton.—Mr. Daniel C. Powell died on May 11, 1915, in his fifty-third year. He was educated at Stonyhurst College, and articled to Messrs. Dunn and Hansom, of London. About 1889 he entered into partnership with Messrs. J. and B. Simmott, but since 1901 had practised alone.—No sessional meetings have been held, but visits were paid to Liverpool Cathedral, the Ship Canal Portland Cement Co.'s works, Ellesmere Port, and the Cunard Steamship Co.'s new offices.

**Pierhead.** The continuance of the European war having brought about a general stoppage of building work, except such as may be required for the purpose of carrying out immediate Government contracts, the architectural profession has suffered severely. Three members of the Council, including two hon. secretaries, are among those who have joined the Colours during the past year, and twenty-nine Fellows and Associates, or more than one-fourth of the members, are now serving in the King's Naval or Military Forces, and generally with commissioned rank. A scheme drawn up by the Architects' War Committee for the purpose of making inquiries into the qualifications of architects, and recommending them for such war service appointments as they seemed most suited for, resulted in about seventy applicants being interviewed by the president and the officials of the society and the application forms forwarded to the Central Committee in London. It is not at present known how far the scheme has succeeded in achieving its objects. The Council have carefully considered the several resolutions passed by the Council of the Royal Institute in relation to professional conduct, and have taken measures with a view to these resolutions being observed by all the members of the society, whether members of the Royal Institute or not. In reply to an inquiry, the Council have received an intimation that a special sub-committee of the Health Committee of the corporation has been appointed to go into the matter of the revision of the building regulations now in force in the city.—The Liverpool Master Builders' Association having approached the society respecting the great difficulties experienced by the building trade owing to the abnormal prices existing from day to day, a deputation from the association was received by the Council and various suggestions of the association carefully considered. While realising the difficulties, the Council were forced to the following conclusions:—"That the society should take no action which might in any way prejudice the interests of either party in respect of existing contracts. That the adjustment of work under new contracts so as to accord with the cost of work at the time of execution would be impracticable. That it did not appear that any action on the part of the society would be beneficial or desirable; and that at the present time each building contract called for its own particular agreement and a mutual recognition of the difficulties to be overcome."—The North-Western Federation of Building Trades' Employees having forwarded a new form of building contract which had been prepared by them, requested that the Council would receive a deputation so that the views of the Federation might be more fully explained. The Council being of opinion that any form of building contract should have a national and not a local character, declined the suggestion of the Federation.—The statement of accounts shows that as compared with last year the balance in hand has suffered a slight reduction—from £302 7s. 3d. to £300 5s. 2d.

**ROCHDALE MASTER BUILDERS' ASSOCIATION.**—The annual meeting of this association was held on Monday in last week at the Freemasons' Hall, Oldham Road, Rochdale. The secretary's and treasurer's reports were approved and adopted. It was stated that during the past year members had a large number of revisions of working rules and wages to deal with, and that in every case amicable arrangements had been made with the operatives' associations. Throughout the working year trade generally, excepting that arising out of Government requirements, has been much below the normal, and with the increasing prices of all building material, prospects are not encouraging. The retiring president was Mr. Thomas S. Wilkinson, and Mr. Benjamin M. Smith was elected president for the present year. Mr. James W. Kay and Mr. William Cryer were elected vice-presidents. Mr. S. Wigham, secretary of the North-Western Federation of Master Builders' Associations, addressed the members on topics of close interest to the trade. Mr. Thomas Howarth proposed and Mr. Thomas

Woolfenden seconded a vote of thanks to Mr. Wigham. The musical arrangements were carried out by Mr. Fred Greenwood's concert party.

### "IRONITE" AND CONCRETE WORK.

Possibly the most striking proof of the value of "Ironite" as a protective for concrete was given in a paper read by Mr. W. D. Child before the Southern District Association of Gas Engineers and Managers on the 16th ult.

Mr. Child had for some time given consideration to the question as to whether the construction of purifiers in their simplest form—i.e., when resting upon or sunk into the ground—might not be more economically effected by the use of Portland cement concrete than with the usual cast-iron plates.

Having become acquainted with the "Winget" concrete block-making machine and the variety of material that may be produced by its use, he resolved to go more closely into the question of the cost of concrete construction. By using suitable proportions of crushed clinkers, breeze, sand, and Portland cement, he found that blocks measuring 3 in. by 9 in. by 9 in. could be produced at a cost of 10d. each, and quoin blocks, closers, and other shapes at proportionate rates. By the use of these blocks the construction of the purifier boxes would be carried out without the erection of any timber framework, or shuttering, and in this way considerable economy would be effected.

To ensure the concrete walls of the boxes being gas-tight, the whole of the inner surface was dressed with "Ironite." The "Ironite" is mixed with water in a pan in small quantities, kept constantly stirred, and applied to the face of concrete with a stiff brush, stippling it well into the pores of the concrete. For the work in question Mr. Child used two coats—allowing the first coat to rust and dry before applying the second—and in this way secured a sound job.

For sake of economy Mr. Child used the "Ironite" in preference to cement rendering. The method of application fills up all cavities in the concrete, and chemical and mechanical union takes place between the "Ironite" and the surrounding surface with but little probability of any subsequent parting, as frequently occurs with cement rendering.

In the course of the discussion, Mr. G. M. Gill (South Metropolitan Gas Company) said that many years before reinforced concrete was introduced Mr. Henry Jones constructed some concrete purifiers at the Wapping Gasworks, and these did good service for a number of years. He had heard that ordinary concrete was used, and that the boxes were not absolutely gas-tight. As the walls of the purifiers formed the boundary wall of the works, he believed it was a favourite amusement of the small boys in the street to light up the little jets of gas escaping outside. One can well believe that, and the utilisation of "Ironite" for the prevention of the leakage of so subtle and destructive an agent as gas strikingly indicates its value in concrete work generally.

The county council of Somerset have agreed to make a grant of £7,203 for additional surface tarring, and to apply to the Road Board for a grant of £3,500 towards the cost of tarr-spraying the main roads.

At the meeting on Saturday of the Gwynfa Rural District Council a letter was read from the Local Government Board consenting to a further postponement for six months of the housing scheme adopted for the Clwydion district. The postponement, however, was on the distinct understanding that the council would proceed with the scheme when called upon to do so.

Mr. Arthur Craven Baxter, of Gaisley, Leeds, who was recently reported as having been killed in the trenches on the Western Front, was article to Mr. A. Marshall, M.S.A., of Otley, in 1907, and was registered as a student of the Society of Architects in 1909. On the outbreak of war he joined the R.A.M.C., and subsequently transferred to the 4th London Field Company R.E.

## Our Office Table.

Lord Barnard, president of the Royal English Arboricultural Society, has communicated to the members the contents of a letter he has received from the President of the Board of Agriculture (the Earl of Selborne), asking him to direct their attention to the urgent need for sowing forest tree seeds this year. Lord Selborne expresses the view that it would be well to impress on the members of the Society the usefulness of even small sowings, for in the aggregate a large number of seedlings might result, and he furnishes a list of the species likely to be in most demand after the war. This list is as follows: Larch, common spruce, sitka spruce, Scots pine, Douglas fir, silver fir, Corsican pine, and beech. Lord Barnard states that he feels very strongly the force of Lord Selborne's remarks, and confidently appeals to every member of the Society, who is in a position to do so, to use his utmost endeavours to give effect to his suggestions.

An interesting exhibition of water-colours and other drawings was opened on Saturday at the Institute Galleries in Whitworth Park, Manchester, and will remain on view for seven weeks. The pictures represent for the most part the vigorous landscape movement which has given distinction to the English painting of the early years of the present century. Mr. Muirhead Bone's drawings of eighteenth-century houses in Bath city, and the ancient buildings of Rome, the landscapes by M. Gere, Messrs. Clausen, A. Rothenstein, and Rushmore, Mr. Frank Brangwyn's *genre* subjects, the portrait studies by Messrs. Strang, Wilson Steer, and Cameron, and Mr. Byam Shaw's and Mr. Walter Sickert's impressionist works are among the principal exhibits.

With reference to the notice published on March 4 containing a list of certain woods covered by the Prohibition of Import Proclamation, the Board of Trade notify that they have issued a general licence permitting the importation, notwithstanding anything in the Proclamation, of the following woods:—Beefwood, boxwood, dogwood, greenheart, hickory, lancewood, lignum vitae, padouk, sabicu, and sandal wood.

An extraordinary deadlock occurred at a special meeting of the Rhyl Urban District Council on Thursday evening, called for the purpose of considering a report by a special committee appointed to deal with a tender received from the firm of Bonford and Evershed, Ltd., Evesham, for removing the sand-drift on the sea front, which has accumulated to an alarming extent, rendering part of the Parade roads impassable. It was stated that the firm's quotation was £715, but in answer to an inquiry from the committee it was prepared to enter into a contract for £700, subject to slight concessions as to details. The Chairman proposed and the vice-chairman seconded the confirmation of the committee's recommendation that the tender be accepted for the sum of £700. A long discussion ensued, some members urging that the private owners of the foreshore should be held responsible for clearing away the sand opposite their properties, while others held that the sandhills themselves should be so treated as to become solid masses. After two casting votes by the chairman against adjourning the matter or rejecting the tender, the meeting terminated without any action being taken.

Part V., the last section, of Vol. VII. of the Transactions of the St. Paul's Archaeological Society has just been published, price 5s. (London: Harrison and Sons, 45, Pall Mall). It contains, besides the records of proceedings and visits, a list of members and annual report and balance sheet, an interesting paper by Mr. A. W. Clapham, F.S.A., on "Three Medieval Hospitals of London"—Elsyng Spital, London Wall, on part of the site of which St. Alphage Church is built; St. Thomas Acon, Cheapside, a site now occupied by Mercers' Hall; and the destroyed

church of St. Katharine by the Tower. Another valuable contribution, illustrated by numerous sketches and full-page halftones, is entitled "Notes on Conservation Crosses," and is by the Rev. E. S. Devereux, M.A., F.S.A., and the Rev. C. E. Cogh Woodruff, M.A., describes "Some Early Possessions of Canonical Obedience to the See of Canterbury." Full-page reproductions of photographs illustrate the recent discovery at the Church of St. Bartholomew, Smithfield, of fragments of the only bay that remained of the nave, exposed by the demolition of the picturesque Elizabethan houses in Cloth Fair, and of the fragments of the apsidal radiating chapel on the south side of choir, revealed when the new choir vestry was recently built from Sir Aston Webb's designs.

At a meeting of the Gwynfa Rural Council on Saturday a report was presented by the sanitary inspector on a number of houses which were wholly unfit for occupation, and which could not be rendered habitable. Light and ventilation were defective, the walls were damp, and in one case the accommodation for eight people was only two bedrooms, an attic, and one small living room; the house had its back embedded in the earth. Mr. Abel Davies considered that the council was far too cowardly in not insisting upon large estates doing their duty. They ought either to repair the houses themselves or hand them over to the council. The Chairman observed that but for the war considerably more cases would have been brought up, but those now before the council were among the worst. It was decided to serve the necessary notices.

At the 46th annual general meeting to-day at Hamilton House, Bishopsgate, of the Val de Travers Asphalt Paving Company, Ltd., the following report will be presented:—After making the following appropriations: Depreciation and cost of maintaining plant and machinery, £2,135 17s. 7d.; written off cost of Nenchatel Concession, £882 7s. 1d.; and depreciation in value of horses and harness, £54 12s. 6d.; the net profits of the year are £11,104 3s. 8d., which, with the sum brought forward, £7,709 19s. 5d., amount to £18,814 3s. 1d. From this has to be deducted the interest on the debenture stock, amounting to £6,900. An interim dividend of 6d. per share was paid in October last; a further dividend of 6d. per share, less income-tax, is recommended, making together 1s. per share, or 5 per cent. for the year, and leaving a balance to be carried forward of £2,114 3s. 1d. Very satisfactory evidence in these trying times of the good management which has so well maintained the leading undertaking in an industry of the first importance.

The Montreal papers state that the city of Montreal is saddled with three million bricks that they do not want. A requisition for bricks came in from the Sewer Department, on the representation that there were none on hand. The Board of Control called for tenders, and on March 3 last gave an order for three million bricks to the National Brick Company. Later it was discovered that there was an uncompleted order for two million bricks, of which a million were available for immediate delivery. To complicate matters further, at a meeting of the Board of Control held on March 6, Controller Groulx presented a letter from Elsie Brick Company, which declared that company's willingness to furnish the city with bricks at lower prices than any other firm was charging. The letter was dated February 26, and stamped "received" at that date. Mr. Groulx wanted to know why it had been held back until the board meeting had been awarded. The Mayor announced an investigation. Finally, the Chairman, the Board took the matter into consideration, the Law Department advised that it was a way of embezzling the city's money, and reducing it.

Mr. John H. P. ... of the ... ville Village ... development of the ... and ... Farm ... by Messrs. A. ... and P. ... who are developing the estate ... and ... have been supplied ...



## CHIPS.

Mr. S. Bawden, of Treviglos, has been appointed surveyor to the St. Columb Rural District Council.

A convent for sisters of mercy is in course of erection at Ballinamore. The contract was taken at over £7,000 by Mr. Patrick Kelly, of Longford.

At the last meeting of the urban district council of Scunthorpe the salary of the surveyor (Mr. H. Hoep) was increased from £250 to £270 per annum.

The question of the extension of the Searborough Cemetery and the provision of a crematorium has been referred by the corporation to a sub-committee to report.

The Pontypandy Building Company are about to build forty houses and construct new roads at Pontypandy, near Caerphilly. The architect is Mr. W. Dowdswell, M.S.A., of Cardiff.

The Road Board will make grants to the Essex County Council of £1,600 and £1,000 respectively for expenditure on the Brentwood and Chelmsford road and on the Barking to Southend road.

The borough engineer of Croydon has prepared a draft map and scheme for the town planning of Beulah Hill district. The Kent and Surrey Committee of the Commons and Footpaths Preservation Society are urging upon the corporation the desirability of making provision for the dedication in the district of open spaces.

The Local Government Board has sanctioned the borrowing by the Leeds Corporation of £10,900 for the erection of new purifiers and £1,600 for pulling down cottages and erecting walls for open-air coal stores and extensions to the gasworks at Meadow Lane. The Gas Committee has accepted the tender of Clapham Brothers, Limited, at £6,624, for the supply and erection of new purifiers.

Mr. John Barker, burgh surveyor of Dumfries, has been invited by the Government to take charge of the town planning of a part of the new Greta area. Mr. Barker asked leave from Dumfries Town Council to accept, and stated that he would put a qualified substitute in his place while he was absent and accept full personal responsibility. After an animated discussion Mr. Barker withdrew his application.

The choir in Hawarden Church, designed by Mr. Gilbert Scott, and given by the Hon. Mrs. Gladstone and her two daughters in memory of Lord W. G. C. Gladstone, M.P., killed in action, will be dedicated to-morrow (Thursday). An inscription on the altar reads: "He was a very parfit gentil knyghte. God Rest his Soule." Viscount Bryce will open the Gladstone memorial wards at Chester Infirmary on Sunday next.

The parish council of Eye, Hunts, having applied to the Local Government Board for a loan of £575 to enable them to extend their present cemetery, Mr. F. R. Tulloch, M.P.E., has held an inquiry into the matter. There was no opposition to the application, but the inspector suggested ways in which the estimate might be reduced. The result was that the parish council was requested to further consider the matter of the loan on the lines of economy suggested by the board's inspector, and this course was agreed to.

At Wednesday's meeting of the city council of Newcastle-on-Tyne a resolution was proposed: "That this council take immediate steps to set up a thoroughly equipped works department to carry through, without the assistance of private firms, building schemes taken up by this corporation, and that a committee be formed with instructions to make the necessary arrangements and report to this council." After considerable discussion the resolution was rejected by a large majority. Sir Baxter Ellis having pointed out that it was contrary to all experience that a corporation could execute a building contract better or more cheaply than a private firm.

Alderman Taggart, as president of the Liverpool Owners' Association, will shortly bring before the Estate Committee of the city council a scheme for the conversion of the Yellow House, or Edge Lane, Estate into a site for factories. He has the assurance of the necessary railway support, and he suggests that the scheme may go forward on some such basis as no rent for the first year, a quarter rental for the second year, rising to a full rental for the fifth year, with proportionate assessments and rating. If encouragement be given to this scheme, a systematic disposal of all the vacant houses and sites in Liverpool suitable for factories may become practicable.

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Ellingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

\* Drawings of selected competition designs important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc.—we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

Telephone: Gerrard 1291.

Telegrams: "Timeserver, Estrand, London."

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\* The special rate to Canada is £1 3s. 10d. = 5dols. 90c. for 12 months, and 11s. 11d. = 2dols. 90c. six months. Our Direct Subscription Agents for Canada are Messrs. Sells, Ltd., 302, Shaftesbury Buildings, McGill Street, Montreal, who will receive Subscriptions, £1 3s. 10d. per annum, on our account.

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## NOTICE.

Bound copies of Vol. CIX. are now ready, and should be ordered early (price 12s. each, by post 12s. 10d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLVI., XLIX., LI., LII., LIII., LXI., LXII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXVIII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., XCVII., XCVIII., XCIX., C., CI., CII., CIII., CIV., CV., CVI., CVII., and CVIII. may still be obtained at the same price; all the other bound volumes are out of print.

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Most of the back issues are to be had singly. A back issue over one month old will be charged 6d. each, postage 1d. Subscribers requiring back numbers should order at once, as they soon run out of print.

Handsome Cloth Cases for binding the BUILDING NEWS, price 2s., post free 2s. 5d., can be obtained from any Newsagent, or from the Publisher, Ellingham House, 1, Arundel Street, Strand, W.C.

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Advertisements for the current week must reach the office not later than 3 p.m. on Tuesday. Front-page advertisements and alterations or stop orders for serial advertisements must reach the office by first post on Monday to secure attention.

RECEIVED.—B. H. C. Co., Ltd.—R., Ltd.—D. J. S. and Co., Ltd.—H. H. and Son—Rev. I. K. A.—F. Munif. Co.—H. E.—W. W. and Sons, Ltd.—W. S. C., Ltd.—T. L.—W. S. Co.—R. J. and Co.—C. and C.—C. Bros.—I. of C.—E. B. D. and Co.

J. H. K.—No.

C. R. P.—Please send

M. North.—Thanks: glad you are pleased.

EMPLOYER.—The claim is an absurd one, and should be resisted. 2. Yes.

LAYMAN.—We know of no society that undertakes enterprises of that sort.

URGENT.—PLEASE NOTE.—To prevent disappointment, owing to restricted and later postal deliveries, it is not safe to wait till Tuesday morning to send us advertisements for the current week's issue. Many reach us after 3 p.m., at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order THE BUILDING NEWS regularly of their newsagent or bookstall. With the present shortage of paper and probable still further rise in its price, it is futile to expect a newsagent to saddle himself or us with surplus unsold copies to oblige chance customers, on which, moreover, he or we have to pay heavy and increasing carriage charges.

## MEETINGS FOR THE ENSUING WEEK

WEDNESDAY (To-day).—St. Paul's Ecclesiological Society. "Some Churches in North-East Hertfordshire," by A. Whitford Anderson, A.R.I.B.A., of Watford. St. Paul's Chapter House, E.C. 8 p.m.

Edinburgh Architectural Association. Annual Meeting at 117, George Street. 8 p.m.

THURSDAY (To-morrow). Society of Architects. Extraordinary General Meeting (members only), to confirm the resolution passed on March 16 to alter Articles of Association. 5.15 p.m.

Shelbourn Society of Architects and Surveyors. Annual Meeting. Architectural Association of Ireland. "Celtic Art," by C. G. Macdowell, 15, South Frederick Lane, Dublin. 8 p.m.

FRIDAY (April 14).—Town-Planning Institute. "Horizontal and Verticality in the Architectural Treatment of Town-Planning schemes," by Barry Parker, F.R.I.B.A. 8 p.m.

MONDAY (April 17).—Liverpool Architectural Society. Annual Meeting. Reception of Annual Report, and Paper on "The Work of an Architectural and Commercial Photographer," by Stewart Bale, 13, Harrington Street, Liverpool. 6 p.m.

TUESDAY (April 18).—Institution of Civil Engineers. Annual Meeting of corporate members only, to receive report of council, and to elect the council and auditors for the ensuing year. 5.30 p.m.

## TRADE NOTES.

Boyle's latest patent "Air-Pump" ventilators have been adopted for the offices of the Scottish Legal Life Assurance Company, Virginia Street, Glasgow.

The New National Bank, Blackrock, Co. Dublin, is being supplied with Shorland's patent Manchester stoves with descending smoke flues, by Messrs. E. H. Shorland and Brother, Limited, of Failsworth, Manchester.

Waterproofed concrete is now used to construct receptacles for many kinds of liquids. We have been informed that a concrete reservoir containing brine was built two years ago at Droitwich. A recent report states that it is still quite leakproof. The powder Pullo was used to waterproof the cement.

The situation of any habitation is considered unhealthy where the floor level is lower than the ground level. Especially is this so when there is filtration of water into the building. We understand that the walls of a Sunday-school at Pudsey, near Leeds, built about 8 ft. below the ground level, became so saturated as to rot the dado, floor boards, and joists. These walls have since been rendered in Pudloed cement, and we hear that although the weather has been exceptionally severe the interior is now perfectly dry.



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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### THE CONSTRUCTION OF THE PANAMA CANAL.\*

The cutting of the Canal through the Isthmus of Panama, a hilly zone of sudden and excessive rainfalls, unstable strata, and liable to earthquake tremors, has been the greatest engineering triumph yet achieved, and one notable among other features as having been one of the few Government undertakings that have been essentially completed within the estimate, both as to time and money. The fascinating story of its planning and building is narrated in a lucid manner by two engineers speaking from actual experience of the entire work of construction. Mr. John F. Stevens, who was the chief engineer from June, 1905, until April, 1907, the preparatory period during which the plant was being designed, the Panama Railroad rehabilitated, the working force assembled, housing and feeding arrangements established, and the working organisation put into shape, describes in Chapters II. to VI. the earlier works. The thread of the story from April, 1907, until April, 1914, the date of the opening of the Canal, is then taken up by Brigadier-General William L. Sibert, who was in charge of the construction of the Gatun locks and dam and of all the work in the Atlantic division, including the channel from Gatun to the outlet at Cristobal into the Caribbean Sea, and he also contributes an illuminating introductory chapter. The dual authorship is doubtless responsible for a certain amount of repetition and the frequent insistence on the point that errors in construction were due to the preparation of plans, and even details, before the Canal levels had been determined—a reiteration which tends to grow wearisome to the reader. The format of the volume is attractive, but the half-tone photographic illustrations are on too small a scale; a page could with advantage have been assigned to each block; and the map of the Canal zone is lacking in clearness and detail. These drawbacks, however, are trifling matters when considered in relation to the charm and interest of the narrative of the construction. The full and reliable index adds greatly to the value of the volume as a book of reference.

The Canal was projected by Ferdinand de Lesseps, and was begun in 1881 by a French company, who abandoned the enterprise in 1889, and were succeeded by a second company, also French, who took charge in 1904, but did little constructional work. Extensive surveys and plans were, however, made by these companies, which proved of great utility when the

undertaking was transferred in March, 1904, to the United States Government on a payment of forty million dollars for the effects. Under authority granted by Congress, three Commissions, each of seven members, were successively appointed. The original Commission, nominated in March, 1904, had, during its twelve months' existence, as engineer-in-chief Mr. John F. Wallace, by whom the preliminary investigations were carried out. The second Commission, nominated in March, 1905, appointed as chief engineer Mr. John F. Stevens, joint author of the volume before us, who planned and procured the plant and created the working organisation and other works of preparation. When the Commission was reorganised in March, 1907, Mr. Stevens resigned, and was succeeded by Colonel George W. Goethals, who was the chief engineer and chief executive officer until the completion of the Canal in April, 1914. All the engineer members of the Commission in charge of work during the constructional period lived to see a finished canal, except Lieutenant-Colonel D. D. Gaillard, who died December 5, 1913, just as his work, the great Culebra Cut, was essentially ended. The French had executed about thirty million cubic yards of material available in the subsequent work, and having an estimated value of about £5,080,000 sterling; but most of the machinery, although in good condition, was obsolete and of little practical use.

After the United States took over the undertaking a long and heated controversy occurred as to whether the Canal should be constructed on the sea-level or with locks. To determine this all-important point, an international board of consulting engineers was appointed, and made an eight-days' inspection of the isthmus, and held thirty meetings, averaging seven hours each, at Washington. Eventually the recommendations of the minority report for a lock or high-level canal, with a summit elevation of 85 ft., were endorsed by all members but one of the Isthmian Canal Commission in February, 1906, and in the following June were finally adopted by Congress. The chief engineer (Mr. Stevens), in his report, argued that a lock canal would provide a safer and quicker passage for ships and the best solution of the treatment of the flood waters of the Chagres and other streams; it could be enlarged in capacity at much less expense of time and money than any sea-level plan; the cost of operation, maintenance, and fixed charges would be smaller, and the time and cost of construction would not be more than one-half that of a sea-level canal. Even at the same cost in time and money for each type, Mr. Stevens

preferred the lock plan to a sea-level scheme.

As planned, the sea-level canal was to be only 150 ft. in width for 20½ miles, 200 ft. for a similar distance, 300 to 350 ft. for 8 miles, and 500 ft. for 10 miles. The alignment through this narrow channel was tortuous, and for long distances the lower part of the section would have been through submerged rock.

Contrasted with those features are those of the lock type, which was adopted: for a distance of nearly 20 miles, a minimum width of 1,000 ft.; for 16 miles, 500 to 800 ft.; and, excluding the locks, the remaining 9 miles of 300 ft., with infinitely better alignment. Lake Gatun alone furnishing several miles of easy long stretches of navigation. In the locks (which are in duplicate) the vessels would move at a slow speed, not under their own power, but towed by locomotives on shore along lock-walls perfectly smooth and through still water.

The effect of probable slides in the Culebra Cut was discussed, but was evidently not foreseen to its full extent. Serious as they are, they would have been disastrous in a sea-level canal. Thus far the engineers have let the landslides occur as they will, removing the material by dredging, but it is evident that costly operations will have to be undertaken ere long to deal with the evil at its root, and possibly unprecedentedly vast works in reinforced concrete will be carried out. True, with a lock system, the immense body of water, with an elevation of 170 ft. above the lower canal level, existent in the Chagres River, subject to tremendous floods, and less than a mile from the line of navigation, has to be provided against, but the depth of water at Gatun Dam is, and never can be more than, one-half what it would have been at the dam that would have been necessary at Gamboa, a difference in pressure of 36 lb. per square inch in favour of Gatun. The matter of ample water supply for any high-level lock type of canal was given grave consideration, and was found to be sufficient, with the time of passage through the Canal proved to be strikingly in favour of the lock type, and as a matter of fact vessels have already passed through the Canal in eight hours. The comparative cost and time of completion of the two types could only be estimated in advance by rough guesses, but actual experience of the lock plan adopted showed that a sea-level canal would have involved more cost of at least double the amount.

The importance of the existing Panama Railway as a necessary adjunct to canal construction was early and clearly recognised, but it consisted of but a single

\* "The Construction of the Panama Canal." By Brigadier-General William L. Sibert, U.S.A., and John F. Stevens. 12mo, cloth, gilt tops, 390 pp., 28 photographic illustrations, and 27 diagrams. 7s. 6d. net. London and New York: D. Appleton and Co.)

track, was destitute of sidings and station buildings, and a still greater defect was that it crossed the axial line of the proposed canal. It was decided to double the track and reconstruct the line for transportation purposes on its existing site (a work accomplished in 1906), and after the completion of the Canal to replace it by a new high-level double-track line located to the east of the Canal. This new railway was completed in May, 1912, after five years of actual construction, at a cost of \$9,000,000. Mr. Stevens thinks that the location of the line at various points back from the cut for several miles was a costly mistake, but its emplacement is now beyond remedy. Permanent shipping and dry docks, engineering shops, and coal-handling plant have been constructed at the Colon and Balboa termini, and the line is provided with new and up-to-date machinery and plant. With the exception of the lock-gates and emergency dams, which were contracted for, all the constructional operations have been carried out by employees serving directly under the United States Government.

The actual work of designing the dam and locks was begun in August, 1906, and all the essential features of the problem had been worked out by March of the following year. The overshadowing problem was the removal of the material in the Culebra Cut, which lay directly through a mountain range with precipitous slopes and side valleys of very small areas. The spoil had to be transported to bank and works distant from ten to thirty miles, a task that could only be accomplished by railway trains. The chief engineer devised a system of work tracks for the cut and at the spoil banks, and every track laid conformed to this general plan. Under this plan the steam-shovels were enabled to work one above the other on horizontal benches, and the trains were so made up and handled as to ensure rapid execution of operations at the least possible cost. Special machinery for handling constructive work was evolved by the engineers and contractors, and much of the new plant, including steam-shovels and dredgers, began to arrive long before the type of the canal was decided upon. When the lock type was chosen there was not a single item of the millions of dollars worth of plant but what was perfectly adapted to its constructional purposes. As the greater part of the Culebra Cut was through rock, hard and soft, it was necessary to drill and blast nearly all its bulk. The greatest amount of concrete masonry ever employed on an engineering project was made and placed, with plant of special design, the rock being procured from a large quarry on the coast twenty miles from Colon, and here an immense crushing plant was built.

When the United States Government resumed the work of construction it was found that the wooden houses abandoned by the French seventeen years previously were almost useless, and fresh quarters for a force of 50,000 men of various races had to be planned, built and equipped by the Division of Building Construction, under the orders and rules, strictly enforced, of the Sanitary Department, a body of trained architects being employed and a practical builder of long experience placed in charge. Standard plans for bachelor and married men's quarters were prepared, and arranged in towns of various sizes close to the works. For negroes, standard bachelors' barracks and married people's quarters, in groups of two or four under one roof, were built, each fitted with bath accommodation, and

every building screened, drained and sewerage. For white employees a plan was evolved under which the relative size and character of the quarters were fixed by a standard, the provision required being taken as a basis, and the accommodation provided for each class was worked out on a basis of wages or salaries. The square-foot being taken as the unit, quarters of different types were planned and built to conform to multiples of such unit. This method was followed not only in the assignment of the houses, but also in their furnishings and fittings, so that a promotion in rank meant not only a better wage, but more commodious living accommodation, and a rise in the social scale. These quarters, for all employees, were built and furnished free of rent. To protect the inmates from mosquitoes and consequent malaria, every aperture in a house was provided with metal screens, and in most cases in the white quarters the beds were screened also. The building materials were pine lumber and fir, with metal roofs, the houses being of two-story type of two- or four-apartment capacity, and raised well above the ground. The internal finish was of planed lumber, painted white. A shower-bath was installed in every apartment. Food was supplied and distributed from refrigerator stores at Cristobal, near Colon, on the Atlantic Coast.

The problem of obtaining sufficient labour proved an intricate one. At the outset some 7,000 negroes from the islands of the Caribbean Sea were engaged, but their indolent habits and rooted belief in their indispensability rendered it necessary to look elsewhere, and eventually some 8,000 labourers from the Biscayan provinces of Spain were employed; they were paid a wage twice that of the negroes, and were worth relatively three times as much. Under the fear of losing their occupation, the efficiency of the negroes markedly improved, and the quality of their labour steadily increased. Clerical and skilled workers were obtained from the United States, the salaries paid being from 60 to 70 per cent. over the standard remuneration at home. An eight-hour day was established, but Mr. Sibert thinks longer hours perhaps ten per diem—would have been beneficial to the morale of the organisation.

All the preparatory work was completed by March, 1907, when the actual construction was put in hand. The adopted project contemplated, as already outlined, a lift-lock canal with a summit level 85 ft. above sea-level, extending from Gatun through the lake and the Culebra Cut to Pedro Miguel, and an intermediate level from Pedro Miguel to La Boca, 55 ft. above the sea, with the terminal parts of canal at sea-level. Ships were to be passed to and from the various levels of the canal by a double flight of three locks at Gatun, a double lock at Pedro Miguel, and a double flight of two locks at Sosa Hill, Balboa. The project provided a channel 500 ft. wide and 41 ft. deep from deep water in the Atlantic to Gatun. In the summit level a great lake section, extending from Gatun to Pedro Miguel, with a minimum width of 1,000 ft. and a depth of 45 ft., was provided in the channel for a distance of about 15½ miles from Gatun South. As the excavation in Gatun Lake increased, in obtaining a depth of 45 ft., the channel width was decreased, first to 800 ft. for a distance of about four miles, then to 500 ft. for a distance of about three and three-quarter miles, and to 300 ft. for a distance of about one and a-half miles. Through the Continental Divide from Obispo to Pedro Miguel, popularly known

as the Culebra Cut, a channel width of 200 ft. was contemplated. On the Pacific Coast side, from Pedro Miguel to a short distance beyond Miraflores, the channel was to be 500 ft. wide, which channel was rapidly to increase in width until the terminal locks on that coast were reached at Sosa Hill, Balboa. The summit level was to be created by an earthen dam, not only across the Chagres River, but across the Chagres Valley at Gatun, with a crest 50 ft. above lake level, the lake to have an area of 164 square miles. The terminal lake on the Pacific side near Corozal was to be 7½ miles in area. The locks were to be 900 ft. long, 90 ft. wide, and to provide a navigable depth of 45 ft. This project was afterwards carried out, but in execution the Culebra Cut was widened from 200 ft. to 300 ft., the location of the locks at the Pacific end was separated, one set being constructed at Pedro Miguel and the second group at Miraflores, and the dimensions of the locks were increased to a width of 110 ft. and a length of 1,000 ft. Later investigations on the site of the Gatun dam led the engineers to lower the slope from 1 in 3 to 1 in 7 and to lower the height of the crest from 50 ft. to 20 ft. above normal lake level. Alterations were also made in Colon Harbour plans, by constructing two breakwaters, so as to provide a large area of deep water. The question of the permanent shipping and dry-dock facilities was finally decided by the prospective needs of the Navy.

From the standpoint of speed of passage of ships through a canal, the shorter the time in which locks can be filled and emptied the better, but larger culverts and passage-ways for water mean greater expense, and the safe handling of a ship depends on the relative tranquillity of the water in the lock chamber. In the Panama Canal water is admitted to or removed from the locks by numerous well-distributed openings, consisting of culverts under the floor, each 6 ft. 6 in. by 8 ft. in diameter, with five circular holes in the top of the culvert 18 ft. apart. These lateral culverts are 36 ft. apart, and are connected with longitudinal culverts 18 ft. in diameter, built in the lock walls, and in communication with the lake on a higher lock level. The flow of water in the main culverts is controlled by rising stem gate valves of the Stoney type, bearing against a train of free rollers. Vessels do not pass through the locks under their own steam, but are towed by electrically-operated locomotives. The lock gates are of the mitring type, and built of steel in the form of girders. The level of Gatun Lake, which is subject to sudden floods from heavy rainfalls, is controlled by a spillway with a discharge capacity of 154,000 ft. per second, which can be supplemented by a further discharge of 40,000 second-feet through the locks, giving, with the 5-ft. elevation of the lock walls above the maximum service elevation of the lake, a large factor of safety. At Miraflores is a smaller spillway for the second and lesser lake. It is noteworthy that no precedents were available for many features of the operating machinery and other details of the lock designs.

The final plans for Colon Harbour were determined March 10, 1910, and the construction was immediately commenced of the west breakwater, which started from Toro Point and projected 11,526 ft. into the Caribbean Sea. The stone for the heaving was obtained from Toro Point and for the casing from Porto Bello. Although it was on the opposite side of the Canal to the railway, it was successfully built for less than the estimated cost.

The east breakwater at Colon was not begun till 1914, and for its construction the railway was available, the heaviest stone being brought from the isthmus and the casing from Sosa Hill, Balboa. In excavating the sea-level canal section from Colon to Gatun both steam-shovels and dredgers were utilized—steam-shovels in making the channel through the Mendi Hills, and the dredges in the remainder. Very little difference in cost was experienced between the dry and wet methods of excavation. The removal of the material for the locks at Gatun proved expensive and difficult, since the rock under the lower lock dipped both to the north and east, and, although the excavations for the locks proper were effected by steam-shovel (at an average cost of 67.8 cents per cubic yard), the frequent slides that occurred proved that it would be impracticable to dig out the material for the flare and guide walls by this method. It was then decided to complete the lock walls to the caisson sill, build reinforced concrete dams between the walls to hold back the sea from the lock chambers in order that the installation of lock gates and machinery might proceed, and to complete the excavation by dredges. The channel excavation from Lima Bay to Gatun was stopped 1,000 ft. south of the site of the flare and guide walls, and the undisturbed earth left as a barrier to keep the sea out of the deep digging. When the lock walls were completed and reinforced concrete dams across the sea end of them had been built, dredges cut a channel through this barrier wide enough for their entrance, and then commenced to excavate the space on which the walls were to be built. The excavation for these walls was the most difficult work in connection with the building of the Gatun locks, if not of the entire Canal, on account of inequality of rock foundations and the instability of the banks, resulting in frequent slides of ooze. In the construction of the locks more than two million cubic yards of concrete were absorbed, and this material, built in monoliths 36 ft. in length, was unloaded on the site as required by duplex overhead cableways working on an electric railway.

Another great undertaking was the construction of the Gatun Dam across the Chagres Valley. This dam is 8,200 ft. long, and consists of three parts—an earthen dam, connecting the locks with Spillway Hill; a concrete dam, with regulation works across the channel in Spillway Hill; and an earthen dam from Spillway Hill to the high ground bounding the west side of the Chagres Valley. It was decided to build first a dam across the Chagres River proper and one across the old French canal, thus diverting all the flow of the Chagres into a channel weir at Spillway Hill, and enabling the work of construction to be started east of the Spillway Hill. The next step was to cut a channel 300 ft. wide through Spillway Hill, into which channel, when completed, the entire flow of the Chagres was to be diverted. With this completed, the west half of the dam was to be built. After the earthen parts of the dam were completed the next step was to build a dam with regulation works across the south end of the Spillway channel, passing the Chagres through temporary culverts during such construction. The real difficulties were encountered in the effort to force the Chagres from the west diversion into the Spillway channel, the intervening space being the actual site for the Gatun Dam proper. Again and again the torrential river carried all before it and temporarily defeated the engineers, but eventually the stream was confined to the

Spillway channel. Many unexpected vertical settlements and lateral slides occurred during the raising of the dam, partly due to the quantity of unctuous clay which was necessarily used in filling, but chiefly to the soft foundations, and these slips were checked by flattening the slope on the north or land face of the dam to 1 in 11.63 and making it uniform from top to bottom. The Gatun Lake has since been filled to its full height, placing against the dam its greatest pressure without the slightest indication of weakness.

In these operations for the formation of Gatun Lake the construction of the Spillway Dam was of necessity the last. It contained a channel lined with a 12-ft. thickness of concrete 300 ft. wide with a bottom 10 ft. above sea-level. The excavation of the channel involved removing one and a-half million cubic yards of material at a cost of 71 cents per cubic yard, and when it was completed the Spillway Dam itself was raised during a dry season. The regulating works on the crest of the dam consist of fourteen Stoney gates, the machinery, in a watertight tunnel, being operated from a switchboard in the power house. On June 13, 1913, the temporary sluice-ways through the Spillway Dam were closed and the lake was allowed to rise to its normal height, a stage reached in the following December without mishap. The submerged trees, logs, and decayed vegetation from the bed which rose to the surface as floating islands, and which threatened to be a danger to navigation, were removed from the lake by being drawn by tugs to the Spillway Dam, over which they were drawn and sent out to the Caribbean Sea.

The central division of the canal extended from the Gatun Dam to the Pedro Miguel Lock, a distance along the axis of the canal of 30½ miles, and included the troublesome Culebra Cut through the Continental Divide. To excavate this cut to a depth of 40 ft. above sea-level it was necessary to form a barrier to the Chagres known as the Gamboa Dyke and to permanently divert the small streams on the watershed to two diversion channels, one on either side of the cut, and parallel to it. These works proved difficult and very expensive. Great trouble was caused by slides and breaks, the worst being the Cucarache slide, which on more than one occasion extended from the east bank entirely across the cut. All these difficulties were, temporarily at least, overcome (although the cut has recently been obstructed by a fresh slide, and was only on Saturday last available to vessels of 50 ft. draft, after having been closed for seven months). The Gamboa Dyke was removed by explosives in October, 1913, opening the cut to Gatun Lake.

The western section of the Canal extended from the lock at Pedro Miguel, at the end of the Culebra Cut, to deep water in the Pacific. The work in this division included building duplicate locks and dams at Pedro Miguel, a duplicate flight of two locks with dams at Miraflores, a connecting channel between these locks through the small lake known as Miraflores, and the sea-level channel from Miraflores Lake to deep water in the Pacific Ocean. While the mean sea-level in the Atlantic and Pacific is essentially the same, the tidal variation on the Pacific is about 20 ft. and on the Atlantic 2 ft. Except for the changes to suit these tidal variations, the plans of the locks at the two ends of the Canal are essentially the same, but all the Atlantic locks are together, forming one structure, whereas those on the Pacific side are separated. The dams on the Pacific side have less

trend of water against them, are shorter, and their construction was not complicated with foundation difficulties such as those that existed at Gatun. The chief problem was the construction of the lower lock at Miraflores, with a tidal variation at the seaward end of 20 ft. The concrete for these western locks was placed in position by cantilever cranes running on rails outside of and parallel to the lock excavation, these cranes performing the same functions at Miraflores as were effected by the duplex cableways, automatic railroad, and electric railroad at Gatun Lock, while at Pedro Miguel it was necessary, on account of the high and unstable banks, to transfer the mixed concrete from one set of cranes to the other by a narrow-gauge steam railroad. The cost per cubic yard of taking material for storage and manufacturing and placing concrete was at Gatun \$2.42, at Pedro Miguel \$2.59, and at Miraflores only \$2.14.

It proved difficult to provide potable water-supplies for the cities and settlements in the Canal zone and for the provisioning of vessels, but aeration and purification plants erected at Gatun, Mount Hope, and Miraflores have improved the taste and odour of the water and also removed the iron suspended in it.

The novel problems presented by the construction of the Panama Canal were many and serious, and the story of their successful solution renders the volume before us of intense interest and great permanent value. It will probably, as Mr. Sibert remarks, be some years before the banks of the Canal are entirely stable and the cost of maintenance approximately constant, but the enterprise is and will ever be a monumental illustration of the ingenuity, enterprise, and untiring pertinacity of American engineers.

#### THE LONDON COUNTY COUNCIL.

At the meeting of the London County Council yesterday (Tuesday) afternoon, the Finance Committee recommended that sanction be given to the borrowing by the Brompton Borough Council of £2,753 for electricity mains, house services and meters; by the Poplar Borough Council of £5,000, the excess in cost over the estimated £27,000 for repaving East India Dock Road and Bow Road with granite setts and of Roman Road with asphalt; by the Stepney Borough Council of £3,000 for boilers and machinery at the electricity station; by the Wandsworth Borough Council of £3,170 for improvements in High Street, East Hill, and Mitcham Road; and by the Woolwich Borough Council of £27,500 for generating plant and machinery and electric mains.

Mr. George Elkington, F.R.I.B.A., was appointed the representative of the Council on the governing body of the Thomas Martyn Charity, Wandsworth, for the ensuing year.

The Buildings Acts Committee stated that on June 22 of last year they reported the decision of the House of Lords allowing the Council's appeal in the matter of the general line of buildings along a portion, over three-fourths of the whole, of the section of Easton Road between Osborn Street and Hampstead Road. They have now considered the effect of the decision upon the question of the building line in other sections of Easton Road. In 1897 the supervising architect of Metropolitan buildings defined the general line of building on the portion of Easton Road between Southampton Street and Fitzroy Street at a distance approximately 50 ft. from the carriage-way. An appeal was lodged against this decision, and the Tribunal of Appeal fixed the line at a distance of about 17 ft. from the carriage-way, and prolonged the line across Fitzroy Street to Tottenham Court Road. After the decision of the House of Lords in the case of the Council v. Fleming, in November,

1910, and acting upon counsel's advice, the Committee decided to test the validity of the order made by the Tribunal in 1897. The superintending architect was, therefore, requested to define the general line of buildings with respect to a plot of land within this section. This line was defined between Southampton Street and Fitzroy Street as being approximately 50 ft. back from the pavement. The owners affected appealed to the Tribunal of Appeal with the result that the Tribunal made an order, dated November 21, 1912, allowing the appeal, with costs, the effect being to reaffirm the line laid down by the Tribunal in 1897. In pursuance of the decision to test the validity of the order of the Tribunal of 1897 the Tribunal was asked to state a special case in order that the Council might be in a position to appeal to the High Court should it consider such a course desirable. The settlement of the special case has, by arrangement, been standing over pending the decision of the House of Lords in the case before mentioned. This case having now been decided in the Council's favour the Committee think that the case which has now been stated by the Tribunal, the title of which is "London County Council v. Galsworthy," should now be proceeded with. They therefore recommended that the decision of the High Court be obtained in the matter of the case stated by the Tribunal of Appeal relating to the general line of buildings on the southern side of the portion of Euston Road between Southampton Street and Fitzroy Street.

The Building Acts Committee further recommended that the operation of the resolution passed in November last ordering the discontinuance of the printing of the annual returns be suspended so far as concerns the sixtieth annual report by the superintending architect, submitting a summary of the monthly reports by district surveyors.

The Establishment Committee reported with regret that Mr. H. T. Wakefield, an assistant in the first-class of the Engineer's Department, was retiring from service owing to ill-health. They recommended that Mr. Wakefield, who is nearly 60 years of age, and entered the service of the Metropolitan Board of Works in 1878, and now receives a salary of £300 a year, be retired with a superannuation allowance of £142 10s. a year with an additional allowance of a lump sum of £442 2s.

The Parliamentary Committee recommended the Council to oppose the South-Eastern and London, Chatham and Dover Railway Bill with the object of securing the rejection of the power relating to Charing Cross railway bridge.

At the Glasgow Dean of Guild Court, on Thursday, leave was granted to Archbishop Mageau to carry out alterations at the Roman Catholic Cathedral in Great Clyde Street.

The death has occurred, at the age of 82, of Mr. Charles Armstrong, for many years principal of the firm of Messrs. Charles and John Armstrong, builders, of Carlisle. After his retirement from that business in 1885 Mr. Armstrong removed to London, and held an appointment under H.M. Office of Works.

Mr. Charles Green, a well-known Sheffield sculptor, has died at the age of 81. He was a friend of John Ruskin, and among his patrons were the late Duke of Portland, the late Baron Rothschild, Sir William Crookes, and a number of Indian Rajahs. Mr. Green won thirteen medals and six diplomas, and exhibited in London and Paris. He had worked for iron foundries in all parts of the country, and for nearly all the silver factories in Sheffield. He was a native of Brampton, Chesterfield.

The memorial to the late Marquis of Londonderry, subscribed for by parishioners, was unveiled on Saturday in the parish church of Seaham Harbour by the Earl of Durham, K.G., and dedicated by the Bishop of Durham. The memorial is a tablet of white Carrara marble, with curved foliated border inlaid with Siena marble. It is surrounded by a moulded frame of polished Irish green marble, and surmounted by the coat of arms of the late peer, emblazoned in heraldic colours. The memorial was executed from the designs of Mr. W. H. Wood, F.R.I.B.A., of Newcastle-on-Tyne, by Messrs. Gahn and Company, of London.

## NATIONAL CONGRESS ON HOME PROBLEMS AFTER THE WAR.

Under the auspices of the National Housing Council a National Congress was held at Caxton Hall, Westminster, from Tuesday until Friday in last week to consider the home problems which will arise after the war, more especially those relating to housing and agriculture, and the possibility of averting unemployment in the building trades. The hall was well filled with delegates from various federations and unions, chairmen, clerks, surveyors, and medical officers of health representing county, municipal, urban, and rural councils, and architects and engineers, and the interest of the proceedings was well maintained.

The chairman was Mr. Harold Shawcross, J.P., a member of the Rochdale Corporation, who remarked in his opening address on the Tuesday that building had been at a standstill ever since the war began, and at its close there would be very little capital available and the rate of interest would be exceedingly high. The virtual stoppage of the erection of working-class houses during the past eighteen months had raised the question of house accommodation in an acute form. When hostilities ceased old houses would be let at very much lower rents than new ones could be built to let at. They were now asking the Government, who alone would be able to control capital, what they were going to do in order to obviate unemployment.

Mr. S. Smethurst, past president of the National Federation of Building Trades Employers, regretted that in the past the most important section of building trade employers had neglected the building of houses, with the result that much of the house building in the larger towns had fallen into the hands of a class of people who did not erect healthy dwellings. Probably it cost 20 per cent. more to build a house soundly, but in the end it was more economical.

Mr. A. G. Cameron, of the Amalgamated Union of Carpenters and Joiners, asserted that private enterprise had failed to meet the housing needs of the people, and urged that the State ought to step in and build the necessary dwellings.

Mr. Cheverton Brown, Chairman of the National Federation of Property Owners, hotly contended that it was utterly false to talk of private enterprise having failed, since 98 per cent. of dwellings for the working classes had been erected by private enterprise. He moved a resolution declaring that all national legislation hampering the provision of housing for the people should be repealed or amended in order to restore public confidence, encourage private enterprise, and resuscitate building operations.

The Chairman ruled, however, this motion out of order, and it fell through.

Mr. Tom Myers, Dewsbury, moved a resolution (which was carried) requesting the Government to take such steps, on either local or national lines, as would stimulate local authorities and other agencies in the erection of houses that were necessary for the working classes. Private enterprise, he said, had not met the demand for additional houses, and seeing that public authorities had recently been busy demolishing buildings without keeping pace therewith in the erection of new houses, they were faced with a dual evil.

Mr. R. Seebohm Rowntree, of York, declared that it would be a scandal if they were to let men who had sacrificed everything to answer their country's call come back to find that, out of sheer apathy, no steps had been taken to see that work was waiting for them. It would be worse still to let them have charity from the Prince of Wales's Fund. They should lay before the Government very strongly indeed the urgency of the problem.

Resolutions were passed calling for legislation to simplify and cheapen the transfer of land with a view to encouraging the building of houses for the working classes; also legislation to secure uniformity in the principle of the rating of owners of house property, and particularly the removal of the existing limits to compounding for rates. A third resolution was adopted expressing the opinion that the legislation promised by the Government in

1913, and again in 1914, with regard to the Finance Act of 1909, should now be carried out in order that an admitted obstacle to the building of working-class houses might be removed, and the provision of such houses be stimulated at the close of the war. Yet another resolution, which was also carried, urged the Government to re-enact the Housing No. 2 Act (1914) to be placed, in operation at the close of the war, and to increase the amount provided under the Act from £4,000,000 to £20,000,000.

### ADEQUATE WAGES AND THE ECONOMIC RENT.

The following resolution was moved:—(a) To set up machinery in all industries to require employers to pay wages sufficient to ensure decent housing accommodation for their workers; and (b) to secure that where such raising of wages can only be achieved by stages, the local authority shall provide decent housing accommodation for those unable to pay an economic rent, and that the country shall bear the difference in the cost between rent of the decent dwelling and that which the tenants can afford to pay.

The motion was carried, together with a rider to the effect that housing schemes promoted by public authorities, save in the case of schemes intended for housing those unable to pay an economic rent, should be economically self-supporting.

### CAPITAL FOR CULTIVATORS OF THE LAND.

Mr. W. H. Grant, land agent, Letchworth, spoke upon the reorganisation of existing methods and the adoption of new methods to secure the provision of capital to aid all classes of cultivators of the land in order that the rural resources of the kingdom may be developed.

### NEW AND CHEAP BUILDING MATERIALS FOR COTTAGES.

Mr. H. L. Paterson, F.R.I.B.A., of Sheffield, read on Friday, the following paper on this important topic:—

The types of cottages with which for the past sixty years or more our industrial town and suburban districts have been filled, do not indicate any special depravity of the speculative builder who has supplied the want, any more than of the community which has been content to accept them. They are the outcome of a combination of circumstances over which the speculative builder has had very little control, and it may be doubted whether he has often made more than a bare living. The plans of the ordinary types of cottages have, with slight variations, become almost standardised, in the continual effort to meet the requirements of the local authorities at the lowest possible cost. The smallest type of cottages (omitting the consideration of back-to-back houses) which have been let at rents of 4s. 6d. to 5s. 6d. per week clear, have a frontage of about 12 feet each, and contain a living kitchen in front with an area of about 150 feet and a scullery at the back about half the size. The stairs, nearly all winders, open into the scullery, and there is a bedroom over each of the ground floor rooms. There is a small dark pantry under the staircase. The next size, let at about 1s. per week more, contains a living kitchen at the back and a parlour about the same size or a little less, at the front. No more frontage is required for this type than for the other, stairs being placed between the rooms, quite in the dark usually, and it is only just possible, if the by-laws are kind, by means of very narrow treads and very steep risers with a sunk landing at the top, to climb up to the bedroom floor. This plan gives two good rooms over the ground floor rooms. There may or may not be a cellar under the front room which does duty both as a larder and a coal store. The next step is to provide an additional scullery, and this is done by means of an annexe projecting at the back and leaving a narrow space, not too well provided with light, for the living room window. Beyond this, or, perhaps, before the scullery addition is given, an attic is provided over the centre of the house, the width between the front and back walls usually permitting this to be done in accordance with the by-laws, and this is quite open to a very steep stair, almost all winders. The cottages are in as long terraces as the by-laws permit, and for the purposes of access to the back and for drainage, through passages are provided.

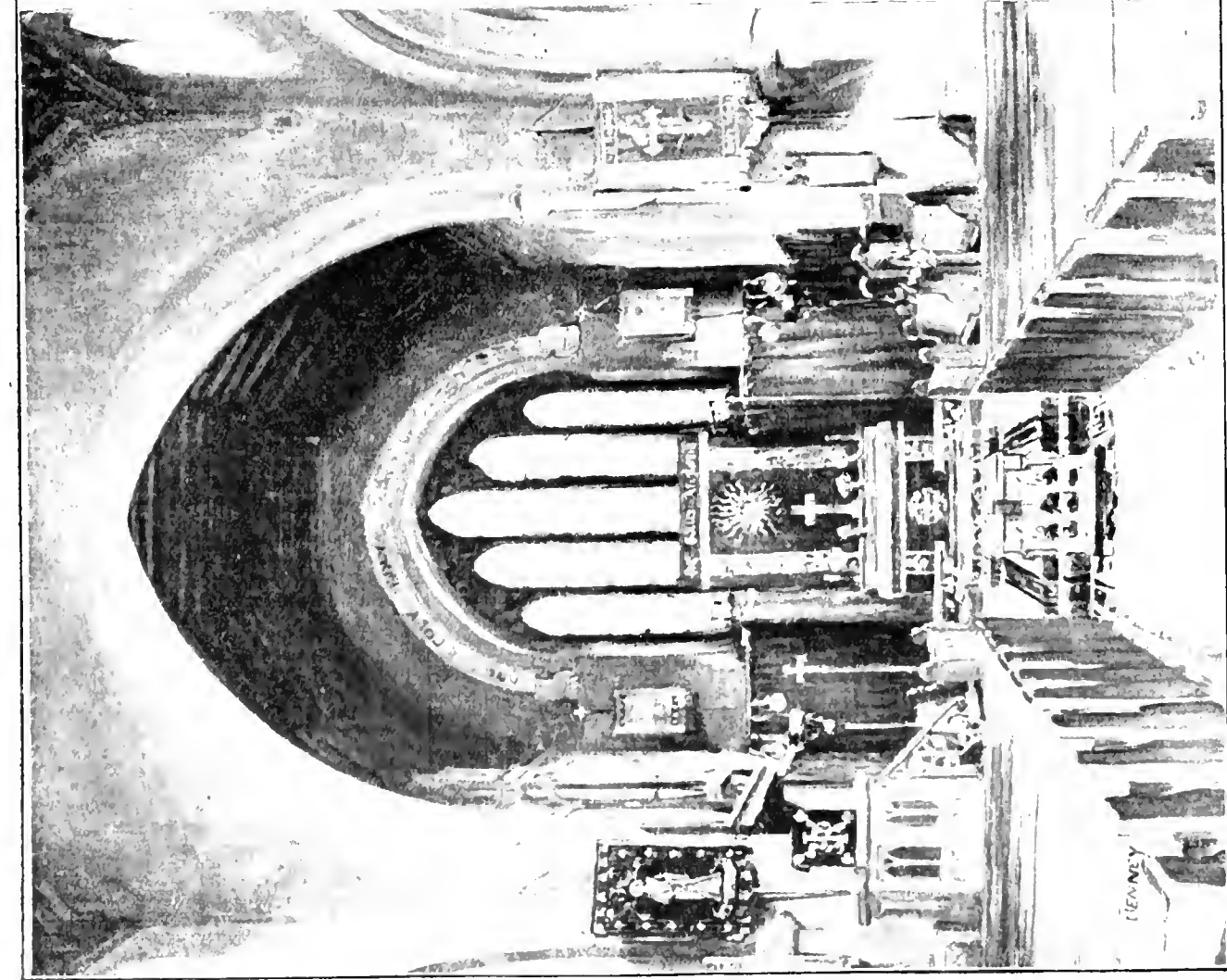


one to each pair, four or eight houses, the space ever being allotted to one of the houses or divided between two. For this an extra rent of 3d. or 6d. per week is charged. In districts where back roads are required the through passages are omitted. The w.c.'s and, perhaps, the coal places, are usually placed in a detached block as near the houses as possible to save drainage costs. As to the appearance of the houses it has been the custom to pay more or less attention to the fronts and to let the backs take care of themselves. Stone, if it is a stone district, is used for the fronts only, or pressed or other best bricks if it is a brick district, the backs being of the commonest and cheapest stocks obtainable. As the rents rise the ornamentation of the fronts becomes more pronounced, roughcast, half timber framing, ornamental barge boards and other features which tempt purchasers and add to the cost of maintenance being given, the backs, in the meantime remaining uncared for. The principal effort of the cottage designer who wishes to improve upon these types is to get away from their worst features with as little extra cost as possible, and even to try to economise in some directions which in the past have been overlooked. This is by no means easy, and the smaller the type of cottage the greater is the difficulty. The first improvement is probably the provision of three bedrooms even in the smallest cottage. This necessitates two being small, but it is better for family reasons to give two as small as the by-laws permit than to give one larger room. The doors are usually left open, if the windows are closed. Whilst every effort should be made to induce tenants to occupy the most comfortable room it is by no means a mistake to give a small parlour in the better-class cottages. It is all very well for the possessors of drawing rooms to abuse parlours in cottages, but it is not always convenient to show a visitor into the living room, which, at the time, may be in use by the family for meals or other purposes. A man or his wife, or both, may desire to have a little quiet whilst the living room is full of children, or the older children may need quiet in order to prepare their lessons. Perhaps the most important development of cottage planning and the most usual, as may be seen by an examination of published drawings, is the abolition, where possible, of back additions. These tend to shut out the light and air from the one room which is in constant use, and make the living room, instead of the brightest, the gloomiest room in the house. This, however, requires more land and entails more expense in street and drainage work. Apart from these there need be no extra cost in the building, and the simplicity of the plan may even lead to a reduction. The removal of detached blocks of w.c.'s and coal places is very desirable, and if these are included in the main block of the building, even if entered from the outside, the extra space over will be available for bedroom accommodation. It is also desirable to aim at the abolition of through covered passages and the avoidance of great length of terraces. This, of course, requires a little more frontage; but the space occupied by three or four passages will go a long way in providing a reasonable space between the blocks. These need not be limited to pairs, but blocks of four, six, or eight, may be introduced, and variety may be obtained by emphasising the end or the central features. An estate developed on these lines is preferable to one where pairs of small cottages are monotonously repeated. In this connection the question of combined drains must be taken into consideration, and the local by-laws will determine the number of houses which may be drained in one direction. As far as possible there should be no essential difference in the external treatment of front and back. There is nothing which gives an estate such a satisfactory appearance as to see all sides treated alike. A glance from a railway carriage will usually announce the presence of an estate developed on "garden suburb" lines and distinguish it from others of the ordinary type. We are urged to build with local materials, especially with local stone, and it is very pleasant to be able

to do so; but this is often a counsel of perfection. Stone, if there are quarries quite near, may certainly be used economically; but it is, and must remain, impracticable to use it for large numbers of cottages of the smallest type in industrial districts. Even when quarries are near, speculative builders have found it more economical to use brick for backs, thus making the objectionable distinction between the two. There are towns in which almost all the houses in one suburb are stone-faced, on account of the proximity of quarries, whilst on the other side of the town brick is exclusively used, the cost of carting three or four miles making the use of stone prohibitive. For nine-tenths of the cottages in our towns brick is, and must remain, the usual building material. Good, well burnt stocks of uneven tints, whether grey or red, with good mortar joints for all faces, are preferable to carefully selected facings for fronts and the commonest bricks for the backs and ends. It is the experience of most architects, at least, in the North of England, where it hardly ever rains without driving, that a 9 in. solid brick wall will not keep out the wet. To point with cement is of no use, because the wet finds its way through the bricks and the position of the headers is often distinctly traceable by wet patches inside. To ensure the back joints being full of mortar may only make matters worse, and it is often found that a wall where the headers are reduced to a minimum and the back joints left open, resists the weather better than a thoroughly well-built wall. This may appear to be a condonation of "jerry building," but it is a common experience to find that it is so. The best remedy is to build cavity walls, using galvanised iron ties for bonding, and although the construction is not so sound theoretically, it is strong enough for walls of the height to two ordinary stories, and nobody has ever heard of a house falling down owing to lack of proper brick bond. The cost of an 11-in. cavity wall over a 9-in. solid wall is very little—only about the price of the ties—but some other expense is entailed. There is a little more roof to cover, there are wider lintels, a damp-course is required over all lintels, window boards are wider, and it is necessary to have a 14-in. wall below the damp-course. There is, however, no expense better justified than that of a cavity wall. Roughcast, put on wet or dry, gives a good effect by introducing a mass of grey or white colour between a brick base and a slated or tiled roof. It should, however, be remembered that not only is there almost the whole of the extra cost of the roughcast over that of the bricks, but there is the cost of maintenance to be considered. In places where tenants do not take some pride in the appearance of the houses it is likely to be broken off in patches and it soon presents a very untidy appearance. It is as unsafe to cover a 9 in. solid wall with roughcast as to leave it bare. It is quite usual to find fine cracks in stucco, however good it may be, after a time, and if the rain drives in and runs down behind the stucco, it finds its way inside the house in places where it cannot be traced. It is a common experience for an architect to be called in to advise about a damp wall covered with stucco, and to be compelled to coat it with some kind of petrifying solution. It is safer to have cavity walls even when they are to be covered, but if not then smooth stucco is safer to use than roughcast, and one of the excellent water-proofing liquids or powders should be added. It is surely unnecessary to insist, as is done in the metropolitan area, on party walls being carried up above the roofs. This involves expense in brickwork, flashings and coping, increases the danger of wet entering and is very ugly. Has a row of cottages ever been burnt down because this has not been insisted upon? By-laws usually fix the heights of rooms, and, in some places, quite unnecessary heights are stipulated, such as 9 ft. clear for ground floor and first-floor rooms, and 9 ft. for two thirds of the area in attics. It would appear that rural councils are the most unreasonable in this respect, and there is danger of some of the most picturesque villages being filled with lanky erections quite out of keeping with

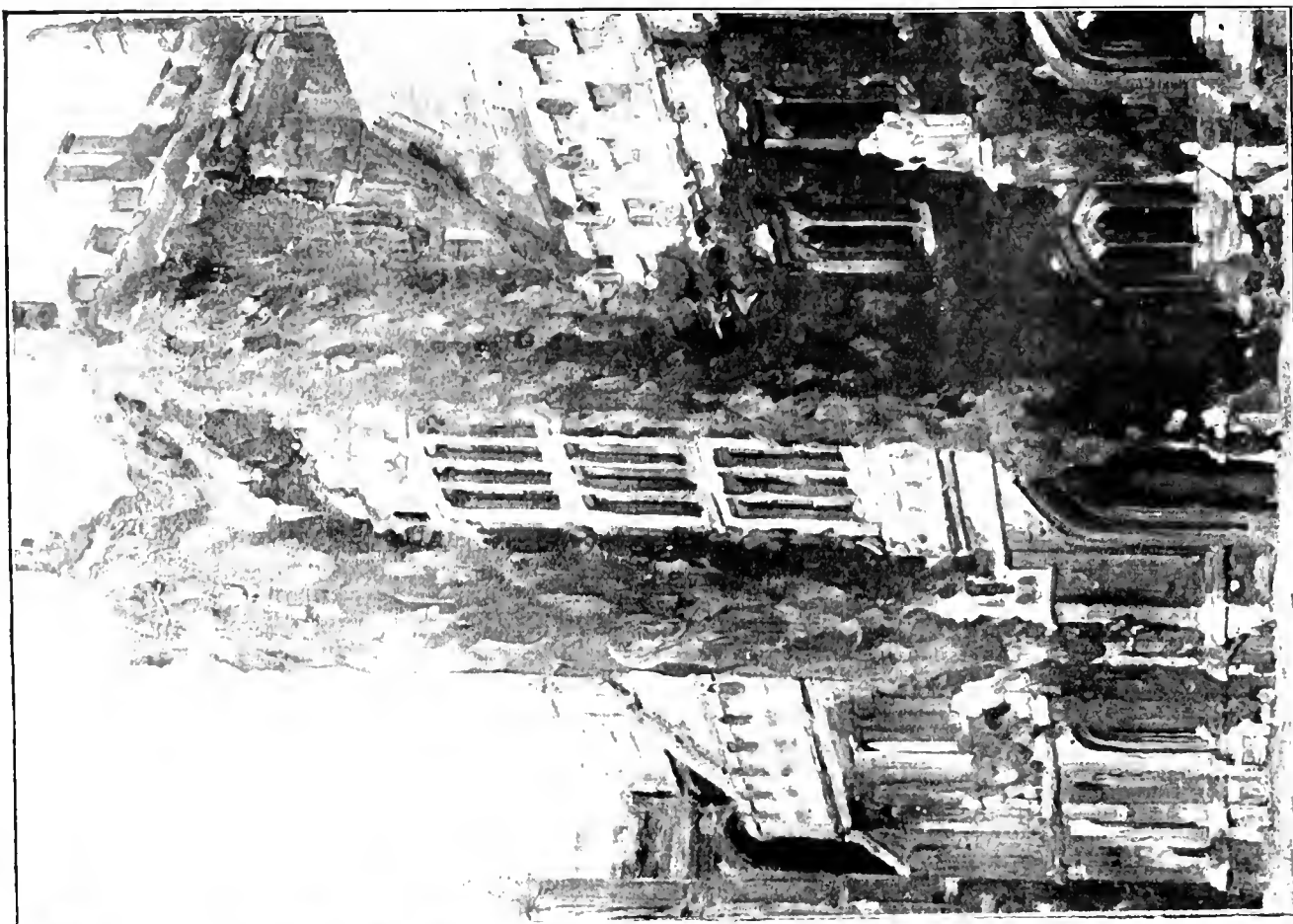
their surroundings. If proper window space is provided, some opening within a few inches from the ceiling, there is no reason why—say, 8 ft. should not be permitted for ground floor rooms and 8 ft. or 8 ft. 6 in. over half the area for first-floor rooms or attics. In some places the regulations actually prohibit first-floor rooms to be made in the roof at all. A concession has sometimes been made in allowing a height of 7 ft. 6 in. at the walls, but this is of very little use because another by-law may fix the height of the top of the windows at this minimum, thus making it impossible to get the windows under the eaves and necessitating the upper parts being treated as dormers. The expense consequent on labour in cutting, in copings, lead, extra rain-water pipes and other incidentals more than counterbalances the saving by reducing the height of the walls. If the average height could be fixed, leaving that at the walls open—or, say, 5 ft.—the saving in walling would be material, and this would permit steeper roofs and the more extended use of tiles, with a consequent variety in design without great extra expense. Welsh slates are cheaper than plain tiles, not only yard for yard, but as a steeper pitch is required for tiles there is more space to cover and the average height of the party walls is greater. There is a prejudice against blue slates from an aesthetic point of view although slate blue is in itself a beautiful colour. Except in the immediate neighbourhood of quarries of other varieties, Welsh blue slates are likely to continue to be used more than any other for cottages on account of their comparative cheapness. If a roof is boarded and covered with an underslating of a suitable nature, the best possible results are obtained; this is, however, expensive. If slates are copper nailed and plain tiles hung, with every fourth course copper nailed, and one or the other pointed on both sides of the battens a cheap and rigid roof is obtained, and one which can be fairly well depended upon to keep out the wet. Pantiles are cheaper than slates, and very charming in appearance; but, as usually laid, they are not so weatherproof as plain tiles unless the roof is boarded. The comparative merits of sash and casement windows have been so much discussed that there is little left to be said about them, and it must always remain a matter of opinion which have the better appearance. The cost is about the same. It must be said that it is very difficult to keep driving rain out if wood casements are used, unless they are made out of thick stuff with elaborate rebating and grooving. Light wood casements are constantly being blown about and broken or torn from their hinges. It costs very little more and it is much more satisfactory to abolish all fixed casements and to substitute light steel where required to open only, elsewhere glazing directly into the frames. Some by-laws stipulate 14-in. by 9-in. flues, a totally unnecessary size, 9 in. by 9 in. being ample except for the kitchen range. The former waste room that can ill be spared in a small cottage. When there are fires in the rooms on both sides of the house it is better not to carry up separate stacks but to gather all over by means of arches into one stack rising above the ridge. In this way expense is saved in brickwork, chimney gutters are avoided, and there is less liability of a curved chimney smoking than of a perfectly straight one. Stacks need not rise more than two feet above the ridge instead of the greater heights often stipulated. Bedroom fires need not be more than 18 ins. wide and arch bars are unnecessary for openings of this width. Many by-laws require concrete under all walls, whatever the nature of the ground may be, and it has been known that builders have been compelled to cut out solid rock in order to lay the stipulated thickness of concrete. Besides concrete footings brick footings with regular offsets are usually required, so that a 9 in. wall 16 or 18 ft. high has under it a block of concrete 2 ft. 6 in. wide. Surely this is unnecessary. In walls of these dimensions it might be permitted that walls should go down to a concrete bed without offsets at all. It should not be overlooked that in a district which has rubble stone quarries, it is often better to put in all the walls below ground

(Continued on page 379.)



ST. ANDREW'S CHURCH, MORLEY, YORKSHIRE.

Sketched by Mr. ERNEST A. S. BENNEY, A.R.C.A., Lond.



FOUNDER'S TOWER, MAGDALEN COLLEGE, OXFORD.



in rubble, an 18-in. rubble wall being as cheap or cheaper than even a 9-in. brick. Also, if rubble is used in this way, with large stones selected for the base, no other footings or concrete will be necessary, the stones adapting themselves well to the irregularities in the ground, provided there is nothing unusual in its nature. Much of the old tarred and sanded dampcourse, now usually prohibited, is of no use for its purpose. Taken out of a wall after a few years, it is often quite rotten and has lost all its weather-proof qualities. Pure bitumen sheeting is perhaps the best and cheapest material to use, and it is not broken by slight settlements in the building as slate often is. Bond timber under joist ends is of no use. Even the inch-thick board which now takes the place of the old 3-in. plate once used is not necessary. Joists are never quite equal in depth, and as the top must be kept level for the boards, the ends have to be packed with small pieces of wood laid on the plate. These are liable to decay and to cause the joist to drop and the floor to become loose. A layer of cement and sand is preferable, but if each joist is laid on the centre of a stretcher brick, the mortar joint under slightly full or thin as the case may require, there is little danger of movement. It is always well to keep wood out of walls as far as possible. In many by-laws the sizes of timbers as stipulated are needlessly large and sometimes they are not stock sizes. The distance of 15 in. from centre to centre now largely stipulated is a fair compromise between the ideal of 12 in. and the 18 in. at one time permitted in many places. It is usual and convenient to lay a solid concrete floor finished with smooth cement or tiles in sculleries and pantries and to have boarded floors for the living rooms. These are usually laid on joists with sleeper walls and a ventilated space below. Another method is to lay fillets on a concrete bed and to nail the boards on these. This gives a good solid floor without spring, and it is often the most economical method. It is often compulsory, and at any rate it is an advantage, to lay a rough concrete floor over the ground even when there are joists, and it is very little extra expense to thicken this layer and make it suitable to take the fillets. It is often, too, a way of getting rid of surplus soil which would otherwise have to be carted away. The cement facing and the fillets should, before the boards are laid, be coated with one of the excellent preparations available for the purpose. Except in very smoky towns where nothing will grow, it is sufficient to provide at the back of the house a tar-paved space 6 ft. or 8 ft. wide, leaving the remainder for garden purposes. In rural districts gravel may be substituted for the tar-paving, but it cannot be kept so clean. It is not desirable to suggest saving in drains, as almost any departure from the usual by-laws will be false economy. It is not easy to ensure that drains laid in the most careful manner will stand, four or five years after being laid, the severe tests that may be put upon them by the local authorities in case of illness, and the whole may have to be relaid. Walls between yards and gardens are costly and unsightly. Having no lateral support, they require concrete under quite as much as any other walls, but they do not always get it. It is quite a common thing, especially in London suburbs, to see the garden walls leaning. Copings, whether of brick or stone, are constantly becoming loose. A light wrought iron unclimbable fence is about the same cost as a brick wall with coping or railing, and it possesses the advantage of throwing open the gardens to sun and air and to the general view. If greater privacy is desired privet hedges can be planted close to the fence. Probably the cheapest form of fence is one of square wood posts at intervals of about 6 ft., the ends coated to prevent decay, and fixed in the ground. The intervening spaces are filled with pales about 3 in. by 1 in., stopping short above the ground with open spaces about an inch wide between. Horizontal triangular pieces are fixed between the posts, and the pales are nailed to these. The whole can be wrought and painted or left from the saw and coated with suitable composition. If cheapness is desired there is no need to plaster scullery and pantry walls. If pointed and whitewashed they will answer all purposes required, and at the same time there will not be the temptation to use the

scullery as a living room. In plastered rooms wood angle beads are to be preferred to ordinary plaster unless the angles are bull-nosed. It is quite easy for children to break off square plaster angles with the fingers. Cement angles are good, but expensive. Window reveals may, however, with advantage, be cemented, the cement projecting sufficiently to stop the ordinary wall plaster. This makes a good, sound job and prevents rain driving in behind the frames. The ordinary lath-and-plaster partitions and ceilings are still the cheapest if they are not the best. Time, however, may be saved in the drying and also greater strength obtained by the use of fibrous plaster slabs nailed to the studs or joints with large galvanised nails, and when the price of laths is high there is little difference in cost between this and the ordinary method. It is not usually practicable to allow more than £5 to £8 to be spent on the whole of the fireplaces in a cottage, and a good proportion of this sum is spent on the living-room range. Whether this is a close range, as preferred in the South, or an open Yorkshire range, common in the greater part of the North of England, must be a matter of taste. The former has the reputation of saving fuel and the latter is more cheerful to look at. A fairly good range can be obtained for about £2. For the parlour, brick surrounds with thick mortar joints and no mantelshelf are often given in "Garden Villages," whether the tenants like them or not; and while it is not desirable to permit them to select the gorgeous enamelled slate mantels, a simple, well-designed cast-iron mantel looks as well as anything, and is inexpensive. For bedrooms it will be found that a small mantelsham front, without a register which closes and prevents ventilation, the fire made up with firebricks, will be cheaper than anything else. The question of a bath is very important, and every cottage, however small, should have one. It is, in the smallest cottages, quite out of the question to provide a separate bathroom with a circulating system to supply hot water. In the larger types of cottages it can be done, but as the cost is anything from £15 to £30 some other arrangement must be adopted in the smaller. It should also be remembered that in many districts, especially in the North of England, owing to the chemical composition of the water, copper must be used for boiler and cylinder, and copper or lead for the circulating pipes. The cheapest substitute is undoubtedly to provide a bath in the scullery close to the washing pan, which may either be set in brickwork with an ordinary coal fire or may be a galvanised pan heated by gas. It takes, of course, a long time to get a bath anything like full of the water heated in the pan, but people have to be content with a moderate supply of hot water, and it is a great deal better than having no bath at all. The bath should be provided with a hinged cover so that it may do duty as a table when not in use otherwise. A better system than this is to provide one of the combination sets, of which there are several types, and which are admirably adapted for cottages when the bath is in the kitchen or scullery.

#### SOME NEW METHODS.

In order, continued Mr. Paterson, to reduce the cost of cottages or to improve their construction, various methods of wall construction are in use. Some of these are excellent, but although comparative prices per yard seem to show these to advantage, the experience of many architects is that unless used on a large scale they are not so cheap as bricks and mortar. Solid or hollow concrete blocks built up as walling stones and sometimes cast with a rough rock face to imitate them cannot be recommended from an æsthetic point of view. If smooth, or if covered with rough-cast, there is not the same objection. Solid continuous walling in concrete is filled in between movable boards, and the face is afterwards covered with stucco. There are houses standing to-day which were built on this system over forty years ago. Monolithic concrete walls are built up by an ingenious method whereby hollow spaces are left in the centre of the wall, tending to keep the house warm and dry. The whole may afterwards be covered with smooth or rough-cast stucco. Solid reinforced concrete walls may be made

quite satisfactorily about 7 in. thick up to the first floor and 5 in. thick above, but the trouble is that by-laws will not usually allow such thin walls, whatever the construction may be. There are several patented systems on the lines above stated, and if covered with stucco they appear to be quite as good as brickwork, if not better, for there is a natural affinity between concrete and the stucco covering. Concrete roofs are economically formed of concrete reinforced by one of the approved forms of bars. Unless, however, there is a ceiling under the concrete, the rooms immediately below are very susceptible to changes in temperature. In cold weather the moisture in the house condenses on the under side of the concrete and distemper peels off. They are usually nearly flat, but a good method is to form them in a segmental shape with a channel and moulding projecting over the wall faces. It is quite easy to form them in this way and also at the same time to form dormer tops and sides, the whole becoming a monolithic structure without the necessity of lead gutters. It is safer to use asphalt to cover these, or, at any rate, one of the systems of rendering concrete waterproof. It is quite possible that, used on a larger scale, some of the above methods may be more economical than the old; but a comparison of tenders actually received tends to show that for a small number of houses at least the ordinary methods to which workmen are accustomed are still the cheapest. There are several makes of artificial slates on the market, and it is usual to lay these so as to overlap the next course of slates below, instead of as in ordinary slating where they overlap the next but one below. It is, however, stated that the form in which they are laid renders this unnecessary in the artificial slates. Whether they are as waterproof as the ordinary slates can only be tested by experience, and it must also remain a matter of opinion whether they look as well. For internal partitions fibrous plaster slabs from 1½ ins. to 3 ins. thick are made by many manufacturers. They are considerably cheaper than brickwork, and may be reinforced so as to attain great strength. An ordinary stud partition is, however, not only the cheapest form of partition, but the studs may be fixed to roof and floor timbers in such a way that additional strength and rigidity are obtained, and they are easily made self-supporting. If plaster slabs are made to rest upon these joists these will have to be increased in strength, otherwise they will yield to the pressure, the ceilings below will crack, and the slabs will show every joint. Properly reinforced, they may, however, be made quite self-supporting, and they have the advantages of not being easily damaged and of not harbouring vermin. There are also one or two systems in which light bricks reinforced by bars are built up in partitions. These give a good key for plastering and are quite efficient. In addition to the new methods of construction above indicated there are many others of an excellent character, some of which are not adapted to cottages, in which every shilling spent requires consideration, but to houses of a more expensive class.

The death is announced of Mr. W. E. Siddalls, assistant surveyor to the Hemel Hempstead Town Council.

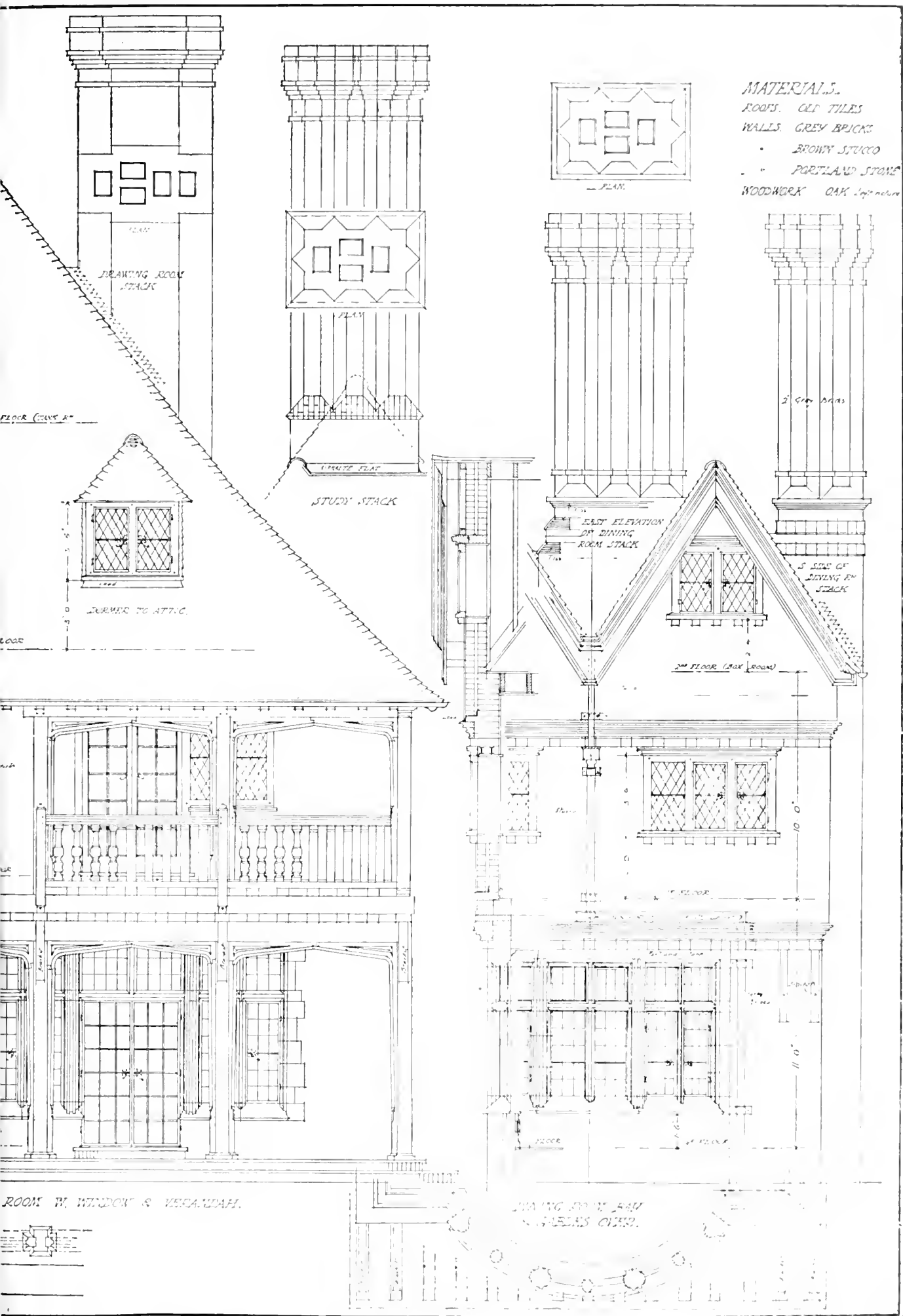
The Westhampnett Rural District Council has instructed Mr. W. Lewis Barrett, engineer, of Bognor, to prepare plans and an estimate for extending the existing surface water outfall at Aldwick in accordance with a suggestion made by the Board of Trade.

The Legislative Council of New South Wales, read on Thursday, by the chairman's casting vote, a second time a Bill for the construction of a bridge connecting Sydney with North Sydney, at a cost of over £3,000,000. The measure was, however, rejected by sixteen votes to thirteen the next day, and the project, the subject of a recent competition, is, at least until after the war, abandoned.

The manager-director of an Australian firm of architects and builders' specialists, who is shortly proceeding to Australia, desires to hear from one or two high-class United Kingdom manufacturers desirous of opening up business in the Commonwealth. Communications in this connection should be addressed to the Secretary, Chamber of Commerce, Liverpool, mentioning this paper.

"CROW CLUMP," WEYBRIDGE.  $\frac{1}{2}$ " DETAILS.





## Corrente Calamo.

The *Land Union Journal* for April contains a very useful article by Mr. E. P. Hewitt, K.C., on the Lumsden judgment, which we advise all interested to study. Mr. Hewitt points out, *inter alia*, that the simplest way of avoiding the difficulty caused by the decision in the Lumsden case as to the method of calculating the site value on an occasion is for landowners to resist attempts by official valuers to put the gross value on the occasion of a sale at a figure lower than the purchase price. To find out what price a property actually will fetch must be the best mode of ascertaining its market value. Such a test is superior to the estimate of any surveyor, however eminent; and the contention that the "fancy price," as it is sometimes called, which an individual (e.g., a next-door neighbour) may for special reasons be willing to give, should be disregarded is unsound. The fact that any individual has, or is likely to have, special reasons for wishing to purchase increases the market value, and this would be the case even if such a person should not be a bidder at the sale, provided that (as would usually be the case) his desire to purchase were known.

This view receives strong support from the decision in *Inland Revenue Commissioners v. Clay* and *Inland Revenue Commissioners v. Buchanan* (1914), 1 K.B. 339; 3 K.B. 466. These two cases related to the same property, and came on for hearing together. The property consisted of a house, which, prior to its sale, belonged to Buchanan, and adjoined a nurses' home. In September, 1910, Clay and certain other persons interested as trustees in the nurses' home purchased the house for £1,000, with the object of enlarging the accommodation of the nurses' home. In January, 1911, a provisional valuation of the house was served, which put the gross value and total value, as on April 30, 1909, at £750. In February, 1911, a valuation on the occasion of the sale was served, which put the gross value at £750, and which put the full site value at the same figure as in the provisional valuation. The result of adopting for the purposes of the occasional valuation the figures in the provisional valuation, when the property had, in fact, been sold for £1,000, was to show an apparent increment of £250 on the occasion. The purchasers (the trustees) appealed against the provisional valuation, and the vendor (Buchanan) appealed against the valuation on the occasion. It was not disputed that £750 would be a fair price for the property but for the fact that the trustees of the nurses' home desired to obtain it and were willing to give £1,000 for the same. The trustees were, in fact, willing to pay more than £1,000 for the property. It was held by Mr. Justice Scrutton that, in ascertaining the open market value of a property, the "principal buyer" cannot be excluded, though for special reasons he may be willing to give a larger price than anyone else. The learned judge accordingly held that the gross and total value on the occasion had properly been put by the referee at £1,000, and that no increment was shown. The Court also upheld the referee in fixing the gross value for the purposes of the provisional valuation on April 30, 1909 at £1,000; but the result, so far as regards increment duty, would have been the same if the gross value in the provisional valuation had been left at £750.

Mr. Justice Scrutton's decision was upheld by the Court of Appeal. The Master of the Rolls said: "An 'open market' sale of property 'in its then condition' presupposes a knowledge of its situation with all surrounding circumstances. To say that a small farm in the middle of a wealthy landowner's estate is to be valued without reference to the fact that he will probably be willing to pay a large price, but solely with reference to its ordinary agricultural value, seems to me absurd. If the landowner does not at the moment buy, landbrokers or speculators will give more than its purely agricultural value with a view to reselling at a profit to the landowner." And Lord Justice Swinfen Eady said: "A value, ascertained by reference to the amount obtainable in an open market, shows an intention to include every possible purchaser. The market is to be the open market, as distinguished from an offer to a limited class only, such as the members of the family. The market is not necessarily an auction sale. The section means such amount as the land might be expected to realise if offered under conditions enabling every person desirous of purchasing to come in and make an offer, and if proper steps were taken to advertise the property, and let all likely purchasers know that the land is in the market for sale." This decision is of the very first importance, and places any owner of land in a strong position for requiring, in any ordinary case, that the figure at which the gross value of his property is put, for the purpose of arriving at the site value on the occasion of a sale, shall not be less than the purchase price; and, in cases where the property is subject to fixed charges or restrictions, that the gross value on the occasion shall be put at a correspondingly higher figure than the purchase price.

Once again the whole wretched business was debated in the House of Lords last Thursday, when Lord Desborough clearly and cogently stated the facts. Mr. Lumsden and others in similar positions have been held liable to pay increment value duty on certain property on which there has been no increase of site value. It is fully admitted by the Government that in passing the Finance Act of 1909-10 Parliament intended that such duty should be charged only where there is an increase of site value. The Commissioners of Inland Revenue have agreed not to levy the duty contrary to the intentions of Parliament in cases which have arisen since a certain date. They have refused to carry this principle back to an earlier period, and it was stated by Lord Desborough that Mr. Lumsden is being pressed for payment. A strong opinion was expressed, not only by Lord Desborough, but by Lord Camperdown and Lord Peel, that if the judgment against Mr. Lumsden be enforced the authorities will be guilty of arbitrary and unjust action. All Lord Crewe was able to say on behalf of the Government was that he had no doubt the Treasury would consider the question of ceasing the pressure in cases parallel with those of Mr. Lumsden, but that it was impossible, without consulting the Chancellor of the Exchequer, to know what view would be taken of such cases. The Lord Chancellor's defence of the authorities was as feeble as Lord Crewe's *non possumus*. The truth is, every decent member of the Government is disgusted at the terrible results of Mr. Lloyd George's blundering finance of 1909-10, but is either ashamed or afraid to say so!

We are perfectly certain that the "conscientious objectors" of all sorts, as soon after peace is signed as possible, will be at their old game of facilitating the return of the Huns. They have their secret sympathisers here still, among the highest and the lowest classes, who will stick at nothing to render the readmission of the ineradicably dishonest, bestially brutal, and for ever implacable Germans easy. There is only one way to stop this, and that is by quarantining Germany and as promptly isolating her secret friends here as we should quarantine and isolate cholera patients if an irruption of that or any other filth disease were likely. With a view to some united national action to prepare for this, we earnestly recommend the prompt perusal and wide distribution of a small brochure entitled "Quarantining Germany," by P. J. Ford, Sons, publishers to the Glasgow University, Glasgow. It is a level-headed, lucid plea for self-preservation, quite free from rant or exaggeration, and argued with the philosophical precision of a scientist discussing the deadly nature of some newly discovered microbe. The price is one penny.

The Wilson Premium for the best paper read before the Crystal Palace Engineering Society during the past session has been awarded to Mr. H. M. Wilson.

It is announced that the National Construction Co., Ltd., the contractors for the new Law Courts Building at Winnipeg, have made an assignment, and are found to have a deficit of approximately \$101,000. A committee of creditors, assisted by an official assignee, are investigating the company's affairs.

What is said to be the first highway for the exclusive use of automobiles ever built was finished recently between Tampico and Panuco, Mexico, a distance of about thirty-five miles. The highway was constructed by the oil companies, and is for the use of motor trucks and automobiles in extensive oil operations at Panuco.

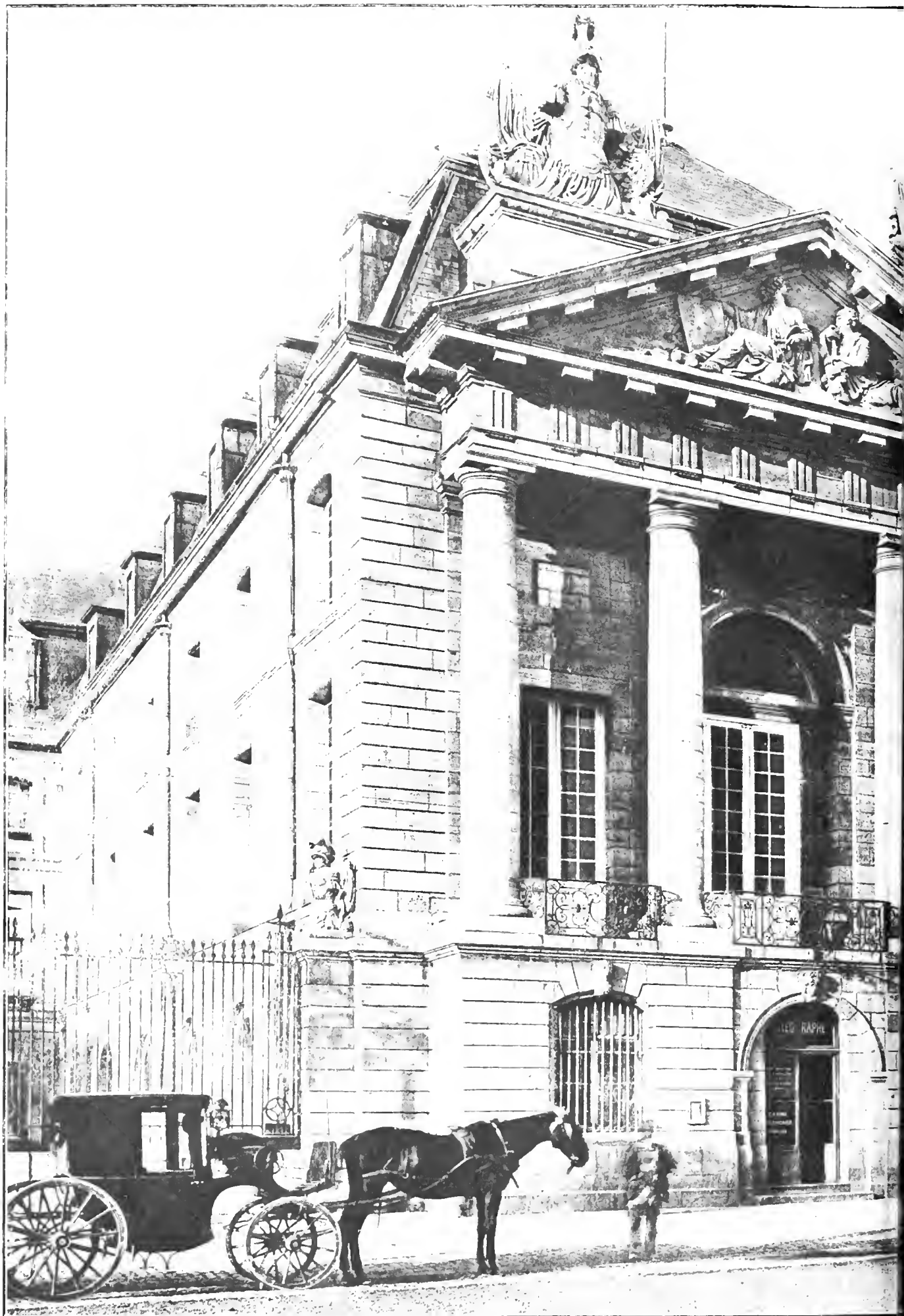
In St. Nicholas's Cathedral, Newcastle-on-Tyne, a memorial tablet to Lieutenant W. L. Brownlow, 5th Northumberland Fusiliers, has been dedicated in the north (military) aisle by Canon Gough, D.D. The tablet, which is of brass, with an alabaster frame, was designed by Mr. W. H. Wood, F.R.I.B.A., the cathedral architect, the alabaster slab and frame being the work of Mr. R. Beall, Newcastle.

A footbridge is being erected over the River Gipping at the end of Riverside Road, Ipswich, to afford direct communication between the Hadleigh Road and Bramford Road districts. It will be of one span of 65 ft. clear, with a footway 5 ft. 5 in. wide, and a height from water level of 13 ft. 9 in. It is being constructed in reinforced concrete by Messrs. W. E. Lester and Co., Queen Anne's Chambers, Westminster, under license of the Indented Bar Co.

At the annual meeting of the London Topographical Society, held at Burlington House on Wednesday, the Earl of Plymouth in the chair, the Earl of Rosebery was elected president. Mrs. W. W. Braines gave an address on the site of "The Theatre," Shoreditch, pointing out that it was London's first public playhouse. Although Shakespeare's connection with it was somewhat obscure, the lecturer said, a good deal of the material was afterwards used in the construction of the Globe Theatre.

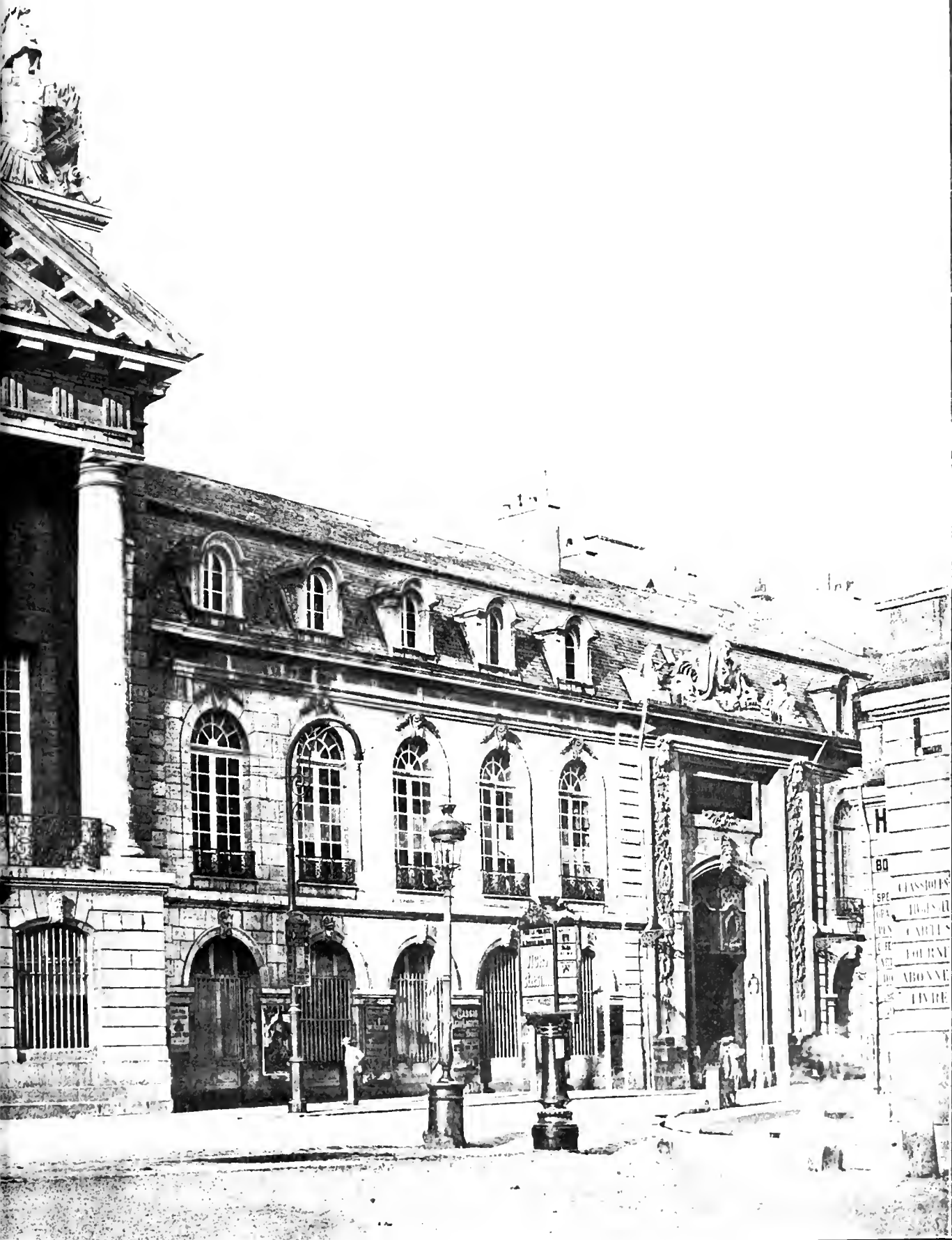
The Ripon City Tribunal have dealt with the appeal by Mr. J. W. Dunn, aged twenty-six, who has just been appointed consulting gas engineer to the Ripon Corporation in connection with the proposed expenditure of £9,000 on the Ripon Corporation Gasworks. He appealed for exemption whilst engaged in reorganising the gasworks. Mr. Dunn stated that he had already done certain work in respect to the Corporation's scheme in London, before the Ministry of Munitions and the Local Government Board. He had got his plans fairly well prepared in readiness for the Local Government Board inquiry shortly to be held, and to dispense with him would undo all that work. The Tribunal granted a temporary exemption to June 30.





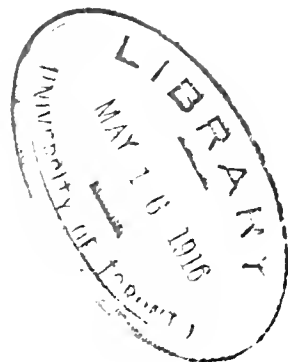
HOTEL DE VILLE, DIJON, FRANCE: JACQUES FRANCOIS-ANG  
(New Wing and Extensions to the





ABRIEL (b. 1668-d. 1782) and FRANÇOIS BLONDIN (b. 1705-d. 1774). Architects.  
ding, originally the Palais des États.)



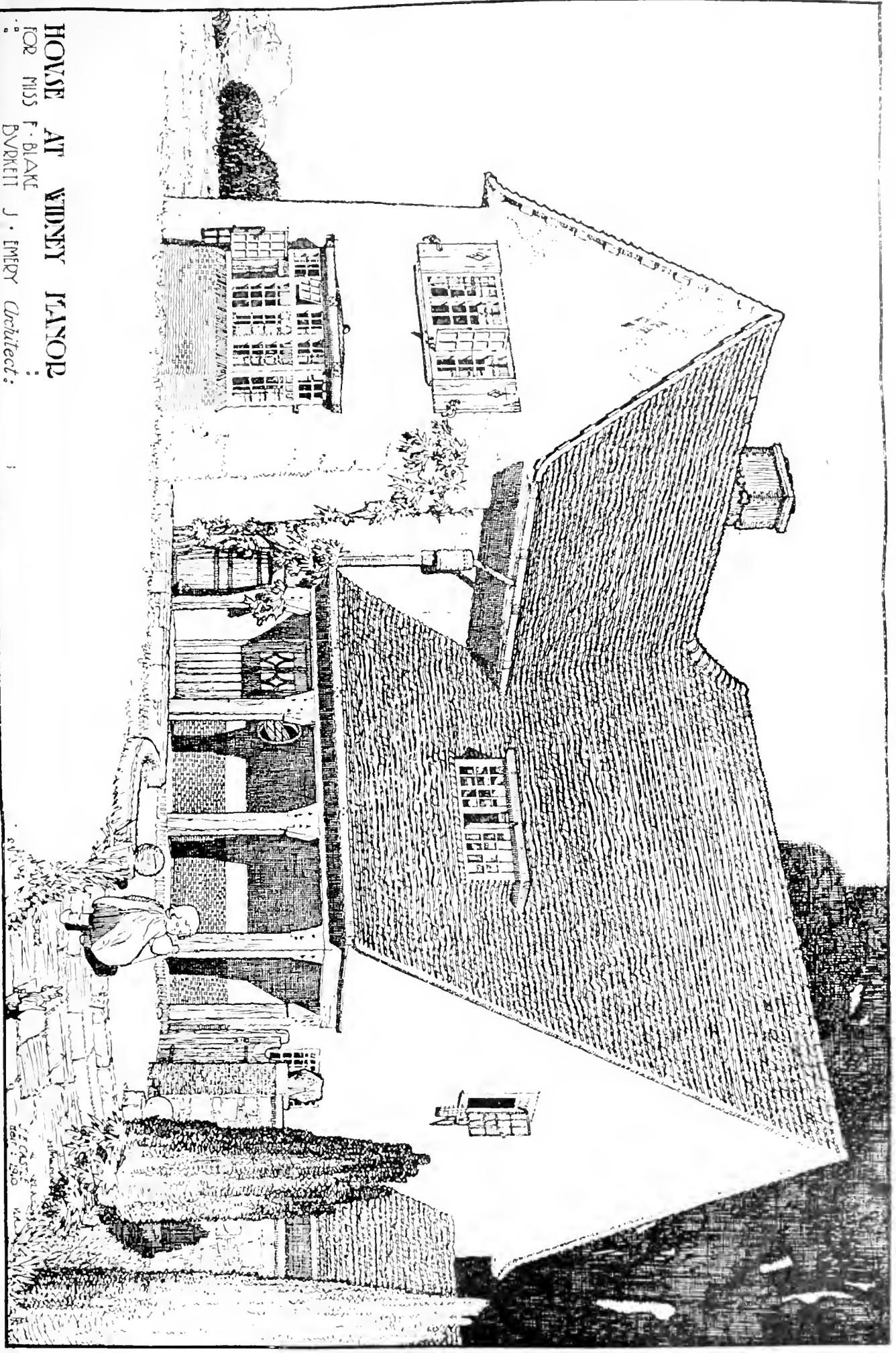












HOUSE AT KIDNEY LANE  
FOR MISS F. BLAKE  
BY KEITH J. EMERY Architect.

## Our Illustrations.

### THE HOTEL DE VILLE, DIJON, FRANCE.

Throughout the period when the style of Louis XVI. was the vogue in France two of the most deservedly famous architects of this later phase of the Renaissance were more or less personally associated with the design and erection of this notable building at Dijon, which occupies the site of the once historic and distinguished palace of the Dukes of Burgundy. The stylistic trend of that age is beyond a doubt, and there can be no question as to the ability of its exponents, Jacques François - Ange Gabriel (b. 1698, d. 1782) and François Blondel (b. 1705, d. 1774), for they stand out prominently among their contemporaries, whose works evinced the greatest divergence between "the opposite poles of the Rococo academic school represented by Boffrand and the new Roman classicism" characteristic of Servandoni. This Hotel de Ville, as it is now called, having been produced, or much enlarged, by the successive efforts of two such great French architects, cannot fail to be of considerable interest to all who study the evolution of design. The premises also include besides the Hotel de Ville the Public Museum and Town Library, with its wealth of manuscripts and 40,000 volumes. Formerly this building was known as the Palais des Etats, but all that remains of the previous Ducal Palace, which once occupied the site in the centre of the town near the present Rue de la Justice, are the Salle des Gardes, or Banqueting Hall, with its magnificent chimney-piece, the "Square Kitchen" (1445), and the Tour de la Terrasse (1419). During the years 1735-7 some important alterations and additions to the Palais des Etats were carried out by Gabriel, including the great staircase. Blondel somewhat later on designed the new wing, which is generally accounted to be one of the most successful provincial buildings of this master. He likewise was employed during 1764-7 to form new formal Places and lay out new streets in Dijon. This work was done at a time when extraordinary activity in city improvements was displayed by the French all over the country, culminating in the splendid project in Paris for a Place Louis XV. between the Tuileries Gardens and Champs Elysées. Gabriel was one of the twenty-eight architects who submitted plans in the second competition for that great work, but the judges approved of none of the designs sent in then. They varied very considerably in merit and in styles, thus causing much controversy. Ultimately Gabriel's proposal was preferred—seemingly by the majority; but however that may have been, the authorities instructed him to combine the best features of all the several competition schemes submitted, and his composition so arrived at was eventually adopted, as seen by the Place de la Concorde as it now stands. He carried out this work after he was sixty-three years of age. Extremely fine examples of Louis XVI. decoration may, of course, be seen in many places outside Paris. There are a few capital examples in the Victoria and Albert Museum, and also some good pieces in the museum galleries at Dijon, which comprise fourteen apartments of differing interest, being the remaining "halls" of the Hotel des Etats. The Palais de Justice, at one time the old Parliament House of Dijon, possesses some exquisite woodwork in the chapel, where there are fine walnut screens by Sambin, whose carvings may also be seen in the museum at Dijon, where there are some fine walnut doors fittingly described as examples of his best skill. A little beyond the Hotel de Ville rises the vast Renaissance front of St. Michel, which was designed by Hugues Sambin, a native of Dijon and pupil of Michelangelo. This facade, rebuilt in the sixteenth century, left the interior of the church standing intact as it now exists, entirely Gothic in style.

### ST. MARY'S CHURCH, STOKE NEWINGTON: CHAPEL AND SCREENS, WITH CHOIR STALLS.

The new woodwork at St. Mary's, Stoke Newington, has been carried out in various sections during the past four or five years. The north aisle of the chancel was first formed into a chapel, the walls being panelled with an oak dado; the chancel screen on this side was then done, with sedilia for the chapel sanctuary against the eastern part. The screen at the western end of chapel, with new steps of Swedish green marble, followed, and shortly after the choir stalls and screen on the south side were erected, with the sedilia and bishop's chair in the sanctuary. All the woodwork has been done by Mr. Robinson, of Broad Street, Bloomsbury, from designs by Mr. C. Oldrid Scott (Messrs. J. Oldrid Scott and Son). St. Mary's Church was erected from the designs of Sir Gilbert Scott, R.A., and is a large building of almost cathedral-like proportions.

### "CROW CLUMP," WEYBRIDGE: DETAILS.

This sheet of working drawings shows some of the chief features of the elevations of "Crow Clump," a large country house erected at Weybridge, from the designs of Messrs. Tubbs, Messer, and Poulter, architects, of Craig's Court House, Whitehall, S.W. Some views of the buildings have been shown at the Royal Academy, and we gave a perspective, with plans, in our issue for July 10, 1914, before the contract was started. On June 9, 1915, we gave the garden front, and on September 15 last an interior of the billiard-room will be found illustrated in our pages. Mr. W. G. Tarrant, of Eyleet, is the builder.

### THE FOUNDER'S TOWER, MAGDALEN COLLEGE, OXFORD.

The cloisters and tower were founded by William Waynflete, Bishop of Winchester, in 1458. This college, in its original quadrangle, cloisters, hall, and chapel, built in its founder's lifetime, possesses the finest buildings in the world. The Founder's Tower, or the great gate of the college, adorned with the statues of St. Mary Magdalen, St. John, Henry III., and the founder, contains a magnificent state banqueting-room, lighted on each side by a grand oriel window, in which is kept some very fine old tapestry, a relic of Prince Arthur, eldest son of Henry VII., who visited the college in 1495. The artist was seated with his back towards the staircase leading to the suite of apartments occupied by the present Prince of Wales during his undergraduate days.

### CHURCH OF ST. ANDREW, MORLEY, YORKS.

This church was consecrated in 1891 on St. Andrew's Day. The architect was Mr. Michael Sheard, of Batley. The first vicar was the Rev. J. E. Furness Thorpe, but the present vicar is the Rev. A. T. Bagott, M.A. The drawing is reproduced by the permission of Mr. Walter Stead, J.P., of Morley. This study, and that of the Founder's Tower, Magdalen College, Oxford, were shown at the Spring Exhibition in the City of Bradford Art Gallery, and were made by Mr. Ernest A. S. Benney, A.R.C.A.Lond.

### HOUSE AT WIDNEY MANOR, WARWICKSHIRE.

This cottage was erected about two years ago at Widney Manor, near Birmingham. The walls were externally covered with white rough-cast, and the roofs laid with sand-faced dark tiles. The windows were in metal casements supplied by Messrs. Humphries, Jackson, and Ambler, and the glazing in leaded squares. The whole of the work is very simple, and the cottage forms a typical example of Mr. Emery's work in his Birmingham practice. Mr. Burkett J. Emery joined the Colours at the outbreak of war, and enlisted in the ranks. He afterwards took up a commission in the Royal Engineers in January, 1915. He went with his regiment to France in August last, and was reported as being missing—believed killed—on October 13 following. No further news has come to his friends since this date, and it is to be feared he lost his life.

From reports given by his brother officers, he acted in a most gallant manner when last seen; his section was surprised by the enemy, and, after being shot in the wrist, he was seen to recover and to rush forward urging his men on, realising the responsibility of his command. He was devoted to his work as an architect, and his cheery good nature won him many friends. He carried out many houses and factory buildings in the Midlands, to which work he devoted himself assiduously. Mr. Emery, who was a member of the Society of Architects and of the Birmingham Architectural Association, had previously published some of his works in the BUILDING NEWS.

### OBITUARY.

Second-Lieut. John Charles Bucknill, Hampshire Regiment, previously reported missing, is now officially reported killed on January 21. He was the senior grandson of Sir John Charles Bucknill, F.R.S., son of Lieut.-Colonel John Townsend Bucknill, R.E., of Thornfield, Bitterne, and nephew of the late Sir Thomas Bucknill, of Epsom. He was educated at Wellington College, and went to Emmanuel College, Cambridge, where he took his B.A., and became an architect. He had been a member of the Architectural Association since 1901. In September, 1914, he obtained a commission in the Hampshire Regiment, and with it left for India in October, 1914, and to the Persian Gulf in March, 1915. During the operations described in despatches published on April 6 the Hampshire Regiment earned distinction, especially at Nasreh, where Lieut. Bucknill and four others were the only officers of the battalion to get through un wounded. For all these services he was "mentioned in despatches." He leaves a widow (*née* Lister), but no children.

Wells-next-the-Sea Urban District Council has appointed Mr. A. T. Howard, of Hingham, to the vacant post of manager of the gasworks.

Mr. F. P. Dolamore, who has acted as deputy to the late Mr. F. W. Lacey for many years, has been appointed borough engineer and surveyor of Bournemouth port town.

The church of St. Thomas à Becket, Penfold, was reopened on Monday evening in last week after extensive internal alterations. The Bishop of Bath and Wells was present.

The plans of the surveyor to the rural district council of Wantage, Mr. T. C. Betts, for the East Hendred Drainage scheme, have been submitted to the Local Government Board for approval.

The work of repairing the spire of Waterford Episcopal Cathedral, which had been seriously injured owing to the severe winter gales, is now completed. The cost of the restoration was provided by a grant from the "Bishop Gore Fund."

The sanction of the Board of Trade has been obtained by the corporation of Plymouth to the borrowing of £111,706 in respect of the purchase of the Devonport and District Tramways Company's undertaking, the term for repayment being thirty years.

Councillor Leonard Stokes, past-President R.I.B.A., submitted the proposal at the meeting of the Westminster City Council on Thursday that Caxton Hall should be sold and the proceeds invested in War Loan, but his motion was rejected by a large majority. He asserted that the site alone was worth £50,000, and its only "return" was a loss of £65 a year.

The Local Government Board has informed the corporation of Newport, Mon., that it is not at present in a position to grant any loan for a housing scheme except where houses are urgently needed in connection with war requirements. Details of the scheme could, however, be prepared, and the Board suggests that more than 25 of the 100 houses should have three bedrooms.

Mr. and Mrs. Cherry, of Henwick Hall, Worcester, have placed in Hallow Churchyard a memorial of their daughter Annora Isabel, who died on February 10, 1914, and their son Lancelot Arthur, Sub-Lieutenant, Drake Battalion R.N.V.R., who was killed in action in the Peninsula of Gallipoli on May 9, 1915. It is a Celtic cross of Bristol Pennant stone, 8 ft. in height, bearing inscriptions in raised lettering.

## LEGAL INTELLIGENCE.

**INCREASE IN RAILWAY RATES.**—Associated Portland Cement Manufacturers (Ltd.) v. Great Northern Railway Co. In the Court of Appeal on Friday, the Master of the Rolls, Lord Justice Phillimore and Mr. Justice Sargant delivered considered judgments dismissing this appeal from a decision of the Railway and Canal Commission (Mr. Justice Lush, the Hon. A. E. Gathorne-Hardy, and Sir James Woodhouse) on an application which raised an important test question as to the validity of an increase made in railway rates under the Railway and Canal Traffic Act, 1913. The applicants, the Associated Portland Cement Manufacturers, Ltd., sent cement at exceptional rates from their works to various stations on the railway of the respondents, and when the rates were increased since July 1, 1913, the applicants deducted from their accounts with the defendants sums representing the increases charged since July, 1913, and claimed to retain these. The applicants had complained to the Board of Trade about the increase of rates, and the Board of Trade certified that the preliminary steps contemplated by Section 1 (3) of the Railway and Canal Traffic Act, 1894, had been duly taken. The applicants complained that all the increases in rates as stated were unreasonable; and they asked the Court for an order declaring the increased rates to be unreasonable and enjoining the respondents to desist from charging them. They also asked to be allowed to retain the sums which they had deducted from their accounts. The Great Northern Railway Company admitted that increases in the rates had been made as alleged, but denied that the increases were unreasonable. The majority of the Court (Sir James Woodhouse dissenting) held that the increase was not unreasonable and dismissed the application. The applicants appealed, but their Lordships dismissed the appeal with costs, holding that there had been no misdirection on the part of the Railway and Canal Commissioners, and that their decision ought not to be interfered with.

**TRURO BUILDERS' BANKRUPTCY.**—At Truro County Court, on Tuesday, before his Honour Judge Gent, in the matter of the bankruptcy of John Harris, trading as C. and J. Harris, builders and contractors, Kenwyn Street, Truro, Mr. Rowe, of Redruth, said Harris was adjudged a bankrupt, and a receiving order was made on January 26, and he applied that debtor be exempt from public examination. The application was made by Alfred Ernest Harris, architect and surveyor, on account of his father being non compos mentis. The affidavit of Dr. Aitken stated that for three years he had attended the bankrupt, who was suffering from chronic diabetes and myelitis, which some time ago produced gangrene, and necessitated the amputation of his left leg below the knee and two toes of the right foot. He was not at all times compos mentis, and was incompetent to answer questions or to give information. Dr. Aitken added that in his opinion he would never be in a fit state to attend court or undergo an examination. The Official Receiver said he did not wish to oppose the application, as he did not think bankrupt would be able to submit to public or private examination. His Honour: Then I have no hesitation in making the order.

## TRADE MOVEMENTS.

**CARPENTERS AND JOINERS AND THE GENERAL LEVY.**—The voting amongst the members of the Amalgamated Society of Carpenters and Joiners on the proposal to continue to pay the general levy of 6d. per member per week under present circumstances has now been completed, and the result has been officially announced: In favour, 9,235; against, 4,327; majority in favour, 4,908. Commenting upon the result the executive council stated that it was encouraging to know their members were prepared to make an effort to meet any financial difficulties which might arise at the conclusion of the war, and that they realised the importance of building up their funds while trade was good.

Mr. A. H. Priest has been appointed as road inspector under the Aldershot Urban District Council.

The town-planning scheme propounded by the urban district council of Bentley-with-Arksay, near Doncaster, has been sanctioned in its entirety by the Local Government Board.

The Saxmundham Urban District Council have elected Mr. G. Partridge, of Leiston, as surveyor in place of Mr. E. F. Wilson, who was recently appointed, but has since obtained another post.

## PROFESSIONAL AND TRADE SOCIETIES.

**ARCHITECTS' BENEVOLENT SOCIETY.** The sixty-sixth annual meeting of this society was held in the R.I.B.A. Library, 9, Conduit Street, W., on Tuesday in last week, the President, Mr. Ernest Newton, A.R.A., F.R.I.B.A., in the chair. The annual report of the council, read by Mr. Percival Curry, hon. secretary, stated that the past year had been one of great activity. Owing to the war a considerable amount of work had been undertaken, both directly and indirectly, by the society in connection with the relief of architects in distress. The Architects' War Committee collected, in response to an appeal from the President, funds which they had placed from time to time in the hands of the society for administration. The scheme of civic surveys for the areas of Greater London, South Lancashire and South Yorkshire was instituted in July, 1915. Before the end of the year two grants of £1,000 each were made by the Government Committee, and were administered by the society on behalf of the Civic Survey for the payment of salaries. The council had, further, worked in close sympathy with the Professional Classes War Relief Council, with the Professional Employment Committee, and with the London Society. The funds placed at the disposal of the society by the Architects' War Committee had made it possible to deal sympathetically with other applications which had been made in direct cognisance of the stoppage of architectural work. The relief of pre-war cases and of widows and orphans had been continued. During the year eighty such applications had been responded to, an amount of £701 10s. having been expended in grants. A further amount of £261 had been paid to pensioners of the society, making the total amount expended in this way £961 10s. Two pensioners had died during the year, and two other annuitants had been elected and were receiving pensions. The funds of the society had been fairly well maintained, the amount received in subscriptions having been £636 19s., and in donations and legacies £1,615 3s. 7d. The dividends on investments amounted to £613 12s. 2d. A further sum of £113 1s. was also received from the Income-tax authorities. The total receipts, apart from special funds placed at disposal by other bodies, was £2,968 15s. 9d. There was a slight diminution in subscriptions, and it was hoped that members who had given donations instead would revert to their former practice. The capital account was increased £1,000 by the legacy of Mrs. Arthur Cates and by £343 15s. 1d. from the executors of the late Mr. William Glover's estate, which had now been wound up. The executors of the late Mr. Bertram Bulmer informed them that the testator had bequeathed a sum of money from which the society would ultimately benefit. The society had benefited to the extent of £173 16s. 7d. from an art exhibition held last summer by members of the Imperial Arts League and of the Royal Institute. The council regretted to record the deaths of Mr. H. L. Florence, the senior vice-president, and of Mr. J. MacVicar Anderson, one of the trustees and a former member of council. In place of the following five senior members of council who retired by rotation, Messrs. H. Lovegrove, W. Grellier, C. R. Baker King, Andrew T. Taylor, and W. D. Caroe, they nominated Sir John J. Burnet, Mr. William Woodward, Mr. Arthur Ashbridge, Mr. A. Saxon Snell, and Mr. Lewis Solomon. The President, in submitting the adoption of the report, asked for more liberal donations to the funds collected for meeting calls, remarking that everyone now felt he was poor, but this poverty was, after all, relative, and each must realise that what he gave must cost him something; he should not only make, but feel, the sacrifice. If the war was prolonged, it would be necessary to consider the advisability of an appeal to a larger public. The motion was seconded by Mr. W. Henry White, and was unanimously agreed to. The following were elected as the council for the ensuing year: President, Mr. Ernest Newton, A.R.A., F.R.I.B.A.; Vice-President, Mr. R. St. Aubyn Roumieu; as ordinary members, Messrs. R. Champneys, C. Stanley Peach, W.

Campbell Jones, Percy B. Tibbels, Edward Grenop, Lewis Solomon, Arthur Ashbridge, How and Chatfield Clarke, Horace Porter, Walter A. Spiers, W. Henry White, Sir John J. Burnet, A. Saxon Snell, William Woodward, and E. C. P. Monson. Mr. W. Hilton Nash was re-elected treasurer, on the motion of Messrs. Roumieu and Grenop; Mr. Percival Curry as hon. secretary, on the motion of Mr. George Seamell; and Messrs. Herbert Shepherd and Osborn C. Hill as auditors, on the motion of Messrs. P. B. Tibbels and W. Hilton Nash.

**EDINBURGH ARCHITECTURAL ASSOCIATION.** The annual business meeting of the Edinburgh Architectural Association was held on Wednesday night, when reports from the various committees were received and approved. No change was made in the office-bearers or members of committees for next session, Mr. J. E. Macleuman, A.R.I.B.A., being re-elected president.

**SCOTTISH ECCLESIOLOGICAL SOCIETY.**—The members of this society recently visited Manuel Priory and Haining Castle, near Linlithgow. The visitors, on arriving by rail at Linlithgow, were met by the Rev. Robert Compar, B.D., the parish minister, and under his guidance proceeded to drive to Manuel Priory, beautifully situated on the banks of the Avon. The Priory, of which only an interesting fragment remains, was described as regards its architectural features by Dr. Ross, architect, of Edinburgh, while notes on its history were supplied by Mr. Compar. It was founded in 1156 by Malcolm IV. for ladies of rank belonging to the Cistercian Order, and was visited in 1301 by Edward I., to whom the Prioress Christina, and her successor, Alice, had sworn fealty. Among its benefactors was also William the Lion and Alexander II., and these gifts were confirmed by succeeding monarchs. At, or soon after, the Reformation the lands passed to William Lord Livingstone, and eventually came by purchase into the possession of the family of Forbes of Callendar, their owners to-day. Dr. Ross pointed out the characteristic twelfth-century masonry, and showed plans, while views of the building in 1739 and 1788 were also exhibited. Part of the Priory was swept away by a flood in 1787 or 1788. The drive was resumed to Haining Castle, so named from having been situated in a wooded enclosure. This was also described by Dr. Ross and by the minister of Linlithgow. It belonged to the family of Crawford, who claimed descent from that Crawford who rescued David I. from the attack of an infuriated stag where Holyrood now stands. In 1633, the coronation year of King Charles I., the name of the castle was changed to Almond Castle. A pause was made on the return drive at Muiravonside Church, where the Rev. Dr. Bayne exhibited two old communion cups presented to the "Parish of Almond."

## TRADE NOTES.

Boyle's latest patent "Air Pump" ventilators have been applied to St. John's Church, Simpson Road, Pudmore, Portsmouth.

The tenancy of his chambers at 14, Buckingham Street, Strand, W.C., having expired, it is requested that all letters and parcels for Sir Thomas Graham Jackson, Bart. R.A., may be addressed to him till further notice at Eagle House, Wimbledon.

The Halstead Isolation Hospital is being supplied with Shorland's warm-air ventilating patent Manchester stoves with descending smoke flues and special inlet ventilators, by Messrs. E. H. Shorland and Brothers, Ltd., of Failsworth, Manchester.

An underground vault was constructed for the National Bank of India in Chancery Street, and, owing to the proximity of the bank premises to the river, water percolated into the vault very freely even after it had been rendered with concrete plaster. A mixture of Portland cement was then used and proved entirely successful.

In the article on "Red Irons" and "Cores" to work (on page 371 of last week's issue) an error crept into the third paragraph in the measurement of the concrete blocks used. This should read 32 ins. by 9 ins. by 9 ins., not 3 ins. by 9 ins. by 9 ins.

## PARLIAMENTARY NOTES.

**INCREMENT VALUE DUTY: THE LUMSDEN CASE.**—In the House of Lords on Thursday Lord Desborough called attention to the action of the Commissioners of Inland Revenue with regard to the Lumsden case and others governed by the same judgment, and moved for papers. The decision in the Lumsden case had caused discontent and heart-burning among hundreds of thousands of builders and property owners, and it was quite time that Parliament took some action in the matter. He raised the question to give Parliament an opportunity of carrying out what was the obvious intention of the Liberal Government when the Budget of 1909 was passed. The Commissioners of Inland Revenue had charged Mr. Lumsden with increment value duty, although it had been admitted that there was no increase in the value of the site concerned. The intention of Parliament in the matter was quite clear. Mr. Lloyd George, then Chancellor of the Exchequer, stated that "increment value duty would only accrue in cases where there had been an increase in the bare value of the site." The then Attorney-General was even more emphatic. Mr. Lloyd George afterwards said that nothing that was due to brains, capital, or expenditure was to be taxed, and if any lawyer told him that the Act did not carry out that intention he was willing to amend it. The Revenue Bills of 1913 and 1914 contained a clause for the protection of Mr. Lumsden and those like him; but in neither year did the Bill pass, and a promise made by the Prime Minister in 1914 to bring in a one-clause Bill dealing with the grievance had not been carried out. The intention of Parliament was quite clearly to tax only that portion of the property which had increased in value through no exertion on the part of the owner. Mr. Lumsden had now become a sort of builders' Hampden, and tens of thousands of cases depended on how this was finally settled. Mr. Lumsden bought a piece of land and built a house on it. He sold the house and the land, and, luckily for him, he made a profit. It was agreed at the time by the representatives of the Crown that there had been no increase whatever in the value of the site, yet the Commissioners of Inland Revenue said that as Mr. Lumsden had made a profit on the transaction they were entitled to 20 per cent. of it. The case was taken to the High Court, and it was held that owing to the obscurity of the wording of the Act of 1909—though the intention of Parliament was plain to anyone—and certain manipulations on the part of the valuers, Mr. Lumsden should pay part of his profit to the Crown. The case was taken to the House of Lords, but as two noble Lords decided one way and two the other the judgment of the Court below was upheld. Mr. Lumsden and thousands of others had the threat hanging over their heads that if they did not pay up forthwith proceedings would be taken against them. It was not a cheap amusement fighting the Crown, and it was an injustice that one might beat the Crown again and again, but he could not claim costs against it. The solution seemed to be simple. The wrong was admitted that men were being pressed to pay up money which they did not morally owe. Either a one-clause Bill such as the Prime Minister had proposed to introduce should be brought into Parliament, or else, until after the war was over and Parliament had time to deal with the matter, these judgments should not be pressed, and those who were in the position of Mr. Lumsden should not be pressed where it had been admitted that there had been no increase in the value of the site. Lord Hylton, replying on behalf of the Treasury and the Inland Revenue Department, said Lord Desborough had stated the case fairly and accurately. The real intention of Parliament had been to charge duty only in cases where a genuine increment in the site value had taken place. The Government had intended to deal with the question by a short Bill, but owing to the war they had not been able yet to carry out the intention. Meanwhile, the Commissioners of Inland Revenue had agreed, as a concession, not to make assessments to duty at present in cases which fell within the terms of Clause 4 of the Revenue Bill, 1914 and these cases were for the time being held in abeyance. But just as Clause 4 was applicable only to cases arising after May 7, 1913, so this concession only extended to sales which took place after that date. In cases arising before that date the Commissioners had made assessments to duty in accordance with the Act of 1910. Generally speaking, amending legislation was not retrospective, and in this case the Crown and the

taxpayer were treated alike.—The Lord Chancellor said he would not have intervened at all but for two things said by Lord Desborough. The noble lord had said that the figures were manipulated by the valuers and that the Inland Revenue Commissioners by questionable methods were attempting to obtain taxes to which they were not entitled. Lord Desborough's words had an ugly ring, and were apt to lead people outside to imagine that, in dealing with a Government Department, they were being tricked and unfairly dealt with. From the earliest days of history Inland Revenue Commissioners and their predecessors had not been popular, but he had yet to learn that in this country they were dishonest or that there was anything questionable in their methods in the sense which Lord Desborough's words suggested. In the case of Lumsden, the original figures of the valuation had been agreed between the parties. What happened was something for which the valuers were in no way responsible. It was that when the property was sold, and when the duty assessable had to be fixed, owing to the construction of the statute it had the result that one began with the price which the man had received for his property, and from that one proceeded to make deductions according to certain principles of valuation laid down in the statute, which caused the profit he had made to be thrown on to the site value, which was the subject of the tax. He agreed that was stated not to be the intention of the statute, but it was not fair to say that anybody had been guilty of manipulating figures when the only thing in dispute was the construction of the Act of Parliament. That was eminently for the Law Courts, and they decided what they regarded as being the true interpretation of the Act.—Lord Desborough: I have read the view of Lord Moulton.—The Lord Chancellor said he was sorry the noble lord had brought in the name of Lord Moulton, as it was likely to provoke comment. Certainly in one or two sentences Lord Moulton used on the occasion he departed from the ordinary judicial practice, which he (the Lord Chancellor) hoped would always be maintained in their Lordships' House, in giving decisions on controversial subjects. The judges who decided that Mr. Lumsden was wrong were many in number and great in eminence. But the fact that other people took a different view meant no more than that the Act was obscure. All he was venturing to answer was the suggestion that at the bottom of Mr. Lumsden's difficulties lay some harsh, improper, and unfair action on the part of Government servants. That was not the case. The same thing was true in the case of Mr. Foran. In that case the people on whom the notice was served to make a return on the form for the valuation of minerals deliberately abstained from making that return. What resulted was not that the Crown took proceedings against these people, but that they took proceedings against the Crown, and asked for a declaration that the form was bad and could be disregarded. The Crown had the case decided in the simplest and cheapest manner possible, its opponents having instituted the proceedings. The learned judge (Lord Justice Warrington) decided in favour of the Crown. It was not a case where the Crown was proved to be wrong from beginning to end. The Marquis of Crewe said that an amending Bill at this moment might give rise to a great deal of discussion on the general principles that governed the whole question of land valuation. That was not desirable in war time.—The Earl of Camperdown and Viscount Peel stoutly supported the motion of Lord Desborough, who, in replying, said he could not allow that the matter had come to a satisfactory conclusion. He had received no assurance on either of the points he had raised. A definite promise had not been given that a Bill would be introduced; nor had he been promised a discontinuance of the pressure. The return he wished to have was one showing the number of cases affected by the Lumsden judgment. The Marquis of Crewe undertook to ask the Treasury whether the information asked for could be supplied, and the motion was then withdrawn.

No fewer than 458 members of the Architectural Association are now serving with the forces in the field.

Mr. F. Wilkinson, the borough surveyor of Deptford, has reported to his Works Committee as to the expense of street cleaning by a motor-sweeping machine. He states that the all-in costs, which include 12½ per cent. for depreciation, are equivalent to 6s. 2.84d. per mile of roadway swept, as against 10s. 5.7d. per mile, the cost of horse-broom sweeping.

## Our Office Table.

Notices of rejection of proffered pictures have now been issued by the council of the Royal Academy. There is a prospect of a quite average exhibition. War subjects will not be too numerous or too prominent. Pictures from the provinces are numerous. An interesting feature of the year's art will be the equestrian monumental statue of King Edward VII. (the Liverpool statue). It is the work of Sir W. Goscombe John, R.A. King Edward sits on his charger wearing the uniform of a field-marshal. This monumental exhibit is being erected temporarily in the centre of the quadrangle outside the Academy, on the same spot on which Watts's "Physical Energy" was exhibited. The Academy will be open to the public on May Day.

On the death of Mr. George Rae, of Liverpool, the trustees of the Rae family offered the committee of the National Art Collections Fund the opportunity to buy the ten oil paintings and ten water-colours and drawings, executed for Mr. Rae by Dante Gabriel Rossetti, with a few exceptions, between 1857 and 1866. The pictures in the collection are as follows:—"The Beloved" (oil), 1865-6; "Monna Vanna" (oil), 1866; "Female Head" (oil) (portrait of Miss Fanny Cornforth), 1862; "Wedding of St. George" (water-colour), 1857; "Tune of Seven Towers" (water-colour), 1857; "Damosel of Sanct Grael" (water-colour), 1857; "Heart of the Night, or Mariana in the Moated Grange" (water-colour), 1862; "Padio and Francesca" (water-colour), 1857; "Death of Breuse" (water-colour), 1857; "Chapel before the Lists" (water-colour), 1857, retouched 1864; "Sibylla Palmifera" (oil), 1866-70, much repainted 1870; "Damosel of the Sanct Grael" (large oil), 1874; "Fazio's Mistress" (oil), 1863; "Venus Verticordia" (water-colour), 1864; "Christmas Carol" (oil), 1867; "Lucrezia Borgia" (water-colour), 1860-1; "Fight for a Woman" (water-colour), 1865; "Daute and Beatrice" (drawing), 1849-50; "Magdalene" (chalk), 1876 (replica of one in the Leyland Collection of 1867). The Rae family are anxious that the collection should be kept together if possible, and that it should be acquired for the nation, preferably for the Tate Gallery, and they are prepared in that case to make some concession as to price. The collection was roughly valued at £15,000 by the Rae trustees, but Mr. Robert Ross, late Assessor of Picture Valuations to the Board of Inland Revenue, put a war-time valuation of £9,695 on them. Mr. Edward Rae has agreed to accept this valuation. Towards this amount Mr. Arthur du Cros, M.P. for Hastings, has offered to contribute £3,000, and it is understood that the Gallery Trustees will give another £5,000 out of the funds over which they have control.

Sir George Fraser, writing from the Athenæum Club to the *Morning Post*, states that two ancient tombs have recently been discovered at Mataria, a suburb of Cairo. The tombs are of the Saite period, or XXVth Dynasty, dating about 600 B.C. The chief one was constructed for a high priest of Heliopolis, the ancient On of the Bible. The tombs had been robbed in ancient times, but the Museum authorities have recovered some sculptured blocks, the scenes on which are imitations of Old Kingdom work. It is hoped to find more tombs and to recover more sculptured blocks when the water level falls in the low Nile season in June. There are many Saite tombs in this district which were built in ashlar in a great pit or excavation, and were then filled in and over with sand. Fine examples of Saite tombs exist at Sakhara, excavated by Sig. Barsanti for the Museum authorities, and near the Pyramid of Howara, excavated by Professor Flinders Petrie in 1889.

The Law and Parliamentary Committee of the Holborn Borough Council, reporting on the proposal of the Library Committee to close the public free library in High Holborn, state that this would be *ultra vires*, as the service was provided under the Libraries Acts at the express wish of the voters,



and that there is no power in the council to refuse to carry out the voters' request. "Although it is possible," the Law Committee add, "that an alternative procedure is permitted by Section 4 (4) of the London Government Act, 1899, under which certain other stringent formalities have to be observed, yet there is considerable doubt as to this point, and in none of the Acts is any provision made for the abolition of a library service. It cannot, therefore, have been contemplated that the Libraries Acts could be abandoned by the library authority, who are really in the position of trustees for the voters, by a mere resolution to that effect." The further question arises whether for the sake of the comparatively small economy which would be effected by closing public libraries it is worth while in the interests of broad public policy to abandon institutions forming so important a part of the national educational system.

An Order in Council has been published in the *London Gazette* amending the Defence of the Realm Regulations so as to empower the Army Council or any person duly authorised by them "to enter on any land for the purpose of inspecting and marking trees, whether standing or felled, and to take possession of any such trees or of plant or vehicles for that purpose, and to provide housing accommodation for workmen employed for any such purpose by taking possession of any land or occupied premises."

At the meeting of the St. Helens Water Committee on Wednesday, the chairman referred with regret to the fact that Mr. J. J. Lackland, water engineer, was retiring at the end of the month, having attained the age of seventy. Other members endorsed the chairman's remarks, Mr. P. Phyllian observing that during the twenty-two years Mr. Lackland had been there many big projects had been carried through, and he hoped that his successor would be as successful. Mr. Lackland returned thanks, and said that during all his service he had received most consistent and kindly support from the chairman and the members of the committee. The retiring water engineer is a native of South Shields. After his training as an engineer he was associated with several railway and waterworks undertakings at Newcastle and North Shields. Nearly forty years ago he became assistant water engineer to the Staffordshire Potteries Waterworks Company at Hanley, and at the end of seventeen years removed to St. Helens. Among the more important works carried out by his direction was the construction of the Melling pumping station and borehole, from which one and a-half million gallons of water are pumped daily, and the construction of a covered service reservoir of 10,000,000 gallons capacity at Brownedge.

The Board of Trade has refused to sanction the sale of beach stones from the North Norfolk coast. It will be recalled that the Boulder Flint Company, a Yorkshire firm, were anxious to secure permission to purchase flints from Sheringham, their main argument being that in consequence of the war it was practically an impossibility to obtain flints for the potteries from France as heretofore, and that flints from Sheringham were the best substitute; also that it was a matter of national necessity that the stones should be obtained from Sheringham, otherwise many factories in the potteries might have to close down. The Sheringham Urban District Council passed a resolution agreeing to the sale, subject to the sanction of the Board of Trade. At a conference subsequently held at Sheringham the application was opposed by Mr. J. H. Bugden, representing the majority of the members of the Erpingham Rural District Council, and also by owners on either side of Sheringham.

It was announced on Wednesday at a meeting of the Court of Governors of the Royal Free Hospital, Gray's Inn Road, that an anonymous donor had made the institution a gift of nearly an acre of land adjoining the hospital, which would be available for an extension of the buildings particularly needed in connection with maternity work and infant welfare.

### TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Ellingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

\*Drawings of selected competition designs important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc.—we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

Telephone: Gerrard 1291.

Telegrams: "Timeserver, Estrand, London."

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### NOTICE.

Bound copies of Vol. CIX. are now ready, and should be ordered early (price 12s. each, by post 12s. 10d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLVI., XLVII., XLVIII., XLIX., L., LII., LIII., LIV., LV., LVII., LVIII., LIX., LX., LXI., LXII., LXIII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXVIII., LXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., XCVII., XCVIII., XCIX., C., CI., CII., CIII., CIV., CV., CVI., CVII., and CVIII. may still be obtained at the same price; all the other bound volumes are out of print.

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Replies to advertisements can be received at the Office, Ellingham House, 1, Arundel Street, Strand, W.C., free of charge. If to be forwarded under cover to advertiser, an extra charge of Sixpence is made. (See Notice at head of "Situations.")

Advertisements for the current week must reach the office not later than 3 p.m. on Tuesday. Front-page advertisements and alterations or stop orders for serial advertisements must reach the office by first post on Monday to secure attention.

RECEIVED: M. Co., Ltd.; Z. M. and Co.—J. O. and Son—S. W. F. and Co., Ltd.—C. and Co.—J. W. H. R. W. C. W. F. S. and Co., Ltd.—G. and Son—D. and Co.—J. K. and Sons, Ltd.—J. C. and Son—R. P. E.—R.

SAOPIAN.—Yes.

T. R. J.—Thanks, no.

BUILDER.—The objection seems frivolous.

PATENTEE.—If there really is anything new about it, it might be; but the past patents of window fasteners must run into hundreds.

A. G. F.—We can only suggest submitting it to some of the usual publishers, who will probably tell you it is not likely to sell half-a-dozen copies at the present time.

H. JAMES.—We illustrated and described the halls of the City Guilds more than a quarter of a century since. You will find several of those you ask for in Vol. 69, which we can send you post free for 6s. 10d.

VERY URGENT.—To prevent disappointment, owing to restricted and later postal deliveries, it is not safe to wait till Tuesday morning to send us advertisements for the current week's issue. Many reach us after 3 p.m., at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order THE BUILDING NEWS regularly of their newsagent or bookstall. With the present shortage of paper and probable still further rise in its price, it is futile to expect a newsagent to saddle himself or us with surplus unsold copies to oblige chance customers, on which, moreover, he or we have to pay heavy increasing carriage charges.

## TO ARMS!

### 4TH BATT. CENTRAL LONDON REGIMENT VOLUNTEERS.

ORDERS FOR THE WEEK ENDING APRIL 22, 1916.  
OFFICER FOR THE WEEK.—Platoon Commander J. R. G. Williamson.

NEXT FOR DUTY.—Platoon Commander A. Gerard.

SCHOOL OF ARMS.—Tuesday, April 18, 6 7 p.m.

LECTURE.—Tuesday, April 18, 7 15 p.m., by Musketry Officer.

MUSKETRY.—See Notice and Timetables A and B at Headquarters.

DRILLS AND PARADES.—For details of all drills and parades, see Notice-board at Headquarters.

EASTER CAMP. All officers' baggage must be at Headquarters by 10 a.m. Thursday, April 20, and the Advance Party will parade at Headquarters 10.30 a.m. The Main Body will parade at Headquarters 1.45 p.m. Transport will be provided. Battalion Headquarters will be transferred to the Bull Inn, Otford, Kent, from Thursday, April 20, to Monday, April 24, inclusive, and Chester House will be closed during that period. The work to be done in camp will include physical drill, entrenching, outposts, night operations, and possibly musketry on the range, and bombing. On Saturday, Mr. Finch will give practical instruction to Officers in Map reading.

NOTE.—Blankets will be provided free of charge by the Battalion.—By order.

MACLEOD YEARSLEY, Adjutant.

April 13, 1916.

### MEETINGS FOR THE ENSUING WEEK

THURSDAY (April 25). Roads Improvement Association. Annual Meeting. 15, Dartmouth Street, Westminster.

At Ballboy Church the Bishop of Meath has dedicated a stained glass east window erected by Mr. and Mrs. R. K. Gamble in memory of their eldest son, who was recently killed in action.

Mr. H. P. Borden, C.E., has been appointed a member of the Canadian Government Commission which has charge of the construction of the new Quebec Bridge, in succession to the late Mr. C. C. Schneider, of Philadelphia. Mr. Borden has been connected with the board since its inception, the last few years as assistant to the chief engineer.

Broadsall Parish Church, near Derby, was totally destroyed by fire by suffragists in June, 1914, was reopened on Friday by the Bishop of Southwell. The cost of rebuilding was £8,500, of which £2,000 was raised by public subscription and the remainder derived from insurance companies. The tower and spire were saved, and much of the outside masonry.

## LATEST PRICES.

N.B.—All prices must be regarded as merely approximate for the present, as our usual sources of information are in many cases failing us.

### TIMBER.

Owing to stoppage of supplies all prices have advanced considerably.

IRON.		Per ton.	Per ton.
Rolled Steel Joists, English.	£20 5 0 to £21 5 0		
Compound Girders, Ordinary			
Sections	22 0 0	23 0 0	
Compound Stanchions	23 0 0	24 10 0	
Wrought-Iron Girder Plates	13 10 0	13 12 6	
Steel Girder Plates	13 15 0	13 17 6	
Steel Sheets (Single or Double)	11 10 0	—	
Steel Strip	10 15 0	—	
Basic Bars	11 15 0	—	
Bar Iron, good Staffs	15 10 0	15 15 0	
Do., Lowmoor, Flat, Round, or Square	24 0 0	—	
Do., Staffordshire Crown	16 0 0	16 10 0	
Boiler Plates, Iron—			
South Staffs	8 0 0	8 15 0	
Best Suedsill	9 0 0	9 10 0	

Angles, 10s., Tees 20s. per ton extra.			
Builders' Hoop Iron, for bonding, £13 5s. to £13 15s.			
Do., galvanized, £20 to £20 10s. per ton.			
Galvanized Corrugated Sheet Iron—			
No. 18 to 20. No. 22 to 24.			
6ft. to 8ft. long, inclusive	Per ton.	Per ton.	
gauge	£29 0 0	£29 10 0	
Best ditto	32 0 0	32 10 0	

Cast-Iron Columns	£13 10 0 to £14 0 0		
Cast-Iron Stanchions	13 10 0	14 0 0	
Rolled-Iron Fencing Wire	8 15 0	9 5 0	
Rolled-Steel Fencing Wire	7 15 0	8 0 0	
Galvanized	6 5 0	6 15 0	
Cast-Iron Sash Weights	7 0 0	7 10 0	
Cut Floor Brads	15 0 0	15 5 0	
Corrugated Iron, 24 gauge	16 0 0	—	
Galvanized Wire Strand, 7 ply,	14 5 0	—	
14 B.W.G.	—	—	

B.B. Drawn Telegraph Wire, Galvanized—			
0 to 8	9	10	11
10 to 15s.	11	12	B.W.G.
15 to 15s.	11	12	B.W.G.

Cast-Iron Socket Pipes—			
3 in. diameter	£7 5 0 to £7 12 6		
4 in. to 6 in.	7 0 0	7 2 6	
7 in. to 24 in. (all sizes)	7 7 6	7 12 6	
[Coated with composition, 5s. 0d. per ton extra.			
Turned and bored joints, 5s. per ton extra.]			

Hot Blast, Lillieshall	137s. 6d. to 142s. 6d.		
Hot Blast, ditto	100s. 0d. to 107s. 0d.		
Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.)—			
Gas-Tubes	582 pc.		
Water-Tubes	55		
Steam-Tubes	51½		
Galvanized Gas-Tubes	47½		
Galvanized Water-Tubes	45		
Galvanized Steam-Tubes	37½		

### OTHER METALS.

Lead Water Pipe, Town	£42 0 0 to —		
Country	43 0 0	—	
Lead Barrel Pipe, Town	43 0 0	—	
Country	44 0 0	—	
Lead Pipe, tinned inside, Town	44 0 0	—	
Country	45 0 0	—	
Lead Pipe, tinned inside and outside	46 10 0	—	
Country	47 0 0	—	
Composition Gas-Pipe, Town	45 0 0	—	
Country	46 0 0	—	
Lead Soil-pipe (up to 4 in.) Town	45 0 0	—	
Country	46 0 0	—	
[Over 4 in. £1 per ton extra.]			
Lead, Common Brands	25 10 0	26 0 0	
Lead, 4lb. sheet, English	35 15 0	36 5 0	
Lead Shot, in 28lb. bags	24 15 0	—	
Copper Sheets, Sheathing & Rods	148 0 0	150 0 0	
Copper, British Coke and Ingot	129 0 0	131 0 0	
Tin, English Ingots	199 0 0	201 0 0	
Do., Bars	200 0 0	202 0 0	
Pig Lead, in lwt. Pigs, Town	33 12 6	34 12 0	
Sheet Lead, Town	41 10 0	—	
Country	42 10 0	—	
Genuine White Lead	50 15 0	—	
Refined Red Lead	54 0 0	—	
Sheet Zinc	135 0 0	—	
Spelter	93 0 0	110 0 0	
Old Lead, against account	31 5 0	—	
Tin	11 5 0	—	
Cut nails (per cwt. basis, ordinary brand)	1 3 0	—	

\* For 5 cwt. lots and upwards.

## I BUY SCRAP METALS

ARTHUR P. COLLINS, Snow Hill, BIRMINGHAM.

Phone: Central 1020. Telegrams: Metalise, Birmingham.  
Bankers: The National Provincial Bank of England, Ltd., Bennett's Hill, Birmingham.

### SLATES.

Blue Portmadoc	in. in. £ s. d. per 1,000 of		
First quality	20 x 10 .. 11 2 6	1,200 at r. stn.	
Blue Bangor	16 .. 8 .. 5 10 0		
First quality	16 .. 10 .. 10 12 6		
Blue Bangor	20 .. 10 .. 11 5 0		
First quality	20 .. 12 .. 11 7 6		
Blue Bangor	20 .. 10 .. 11 0 0		
First quality	20 .. 12 .. 10 12 6		
Blue Bangor	16 .. 8 .. 5 10 0		

Eureka unfading	in. in. £ s. d. per 1,000 of		
green	20 .. 10 .. 15 17 6	1,200 at r. stn.	
" "	20 .. 12 .. 18 7 6		
" "	18 .. 10 .. 13 5 0		
" "	16 .. 8 .. 10 5 0		
Permanent Green	20 .. 10 .. 11 12 6		
" "	18 .. 10 .. 9 12 6		
" "	16 .. 8 .. 6 12 6		

### BRICKS.

(All prices net.)

First Hard Stocks	£2 0 0 per 1,000 alongside, in		
Second Hard Stocks	1 16 0	river.	
Mild Stocks	1 14 0		
Picked Stocks for		delivered at	
Faenags	2 12 0	raily. station.	
Fleetons	1 10 0		
Pressed Wire Cuts	1 18 0		
Red Wire Cuts	1 14 0		
Best Fareham Red	3 12 0		
Best Red Pressed			
Ruabon Facing	5 5 0		
Best Blue Pressed			
Staffordshire	5 0 0		
Ditto Bullnose	5 5 0		
Best Stourbridge Fire-			
bricks	4 15 0		
2½ in. Best Red Ac-			
crinting Plastic	4 10 6		
Facing Bricks			

3½" Accrington Best Red Plastic Facing Bricks	£2 10 0		
3½" ditto Second Best Plastic ditto	2 2 6		
Ditto Ordinary Secondary Bricks	1 11 3		
Ditto Plastic Engineering Bricks	1 17 6		
Sewer Arch Brick, not more than ¾ in			
thickest part	2 0 0		
3½" Chimney Bricks fit for outside work	2 6 0		
3½" ditto ditto through and through	2 0 0		
3½" Beaded, Ovolo and Bevel Jambs; Octa-			
gons; 2½" and 1½" radius Bullnoses; Stock	3 7 6		
patterns			
Accrington Air Bricks, 9" x 2 course deep, each	0 0 6		
Ditto 9" x 1 course	0 0 3		
Accrington Chamber Arches—			
3 course deep 4½" soffit, per foot opening..	0 1 3		
4 " 4½" " " " " " " " "	0 1 8		
5 " 4½" " " " " " " " "	0 2 1		
6 " 4½" " " " " " " " "	0 2 6		
3 " 9" " " " " " " "	0 2 1		
4 " 9" " " " " " " "	0 2 11		
5 " 9" " " " " " " "	0 3 6		
6 " 9" " " " " " " "	0 4 6		

Net free on rail, or free on boat at works.

### GLAZED BRICKS.

HARD GLAZES (PER 1,000).

White, Ivory, and Best.					
Salt Glazed	Buff, Cream, Other	Second			
Best.	Seconds.	& Bronze. Colours.	Colours.		
Stretchers—					
£12 7 6	£11 7 6	£13 17 6	£17 17 6	£12 17 6	
Headers—					
11 17 6	10 17 6	13 7 6	17 7 6	12 7 6	
Quoins, Bullnose, and 4½ in. Flats—					
15 17 6	14 17 6	17 17 6	21 7 6	16 7 6	
Double Stretchers—					
17 17 6	16 17 6	20 17 6	24 7 6	18 7 6	
Double Headers—					
14 17 6	13 17 6	17 17 6	21 7 6	15 7 6	
One side and two ends, square—					
18 17 6	17 17 6	21 17 6	26 7 6	19 7 6	
Two sides and one end, square—					
19 17 6	18 17 6	22 17 6	26 17 6	20 7 6	
Splays and Squints—					
17 7 6	16 7 6	21 17 6	24 17 6	17 17 6	
Plinth and Hollow Bricks, Stretchers and Headers—					
5d. each	4d. each	6d. each	6d. each	5d. each	
Double Bullnose, Round Ends, Bullnose Stops—					
5d. each	4d. each	6d. each	6d. each	5d. each	
Rounded Internal Angles—					
4d. each	3d. each	5d. each	5d. each	4d. each	

### MOULD BRICKS.

Stretchers and Headers—					
8d. each	8d. each	8d. each	8d. each	8d. each	
Internal and External Angles—					
1/2 each	1/2 each	1/2 each	1/2 each	1/2 each	
Sill Bullnose, Stretchers, and Headers—					
5d. each	4d. each	6d. each	6d. each	5d. each	
Majolica or Soft Glazed Stretchers and					
Headers	£22 17 6				
" Quoins and Bullnose	27 17 6				
Compass bricks, circular and arch bricks of					
single radius 46 per 1,000 over above list					
for their respective kinds and colours					
Camber arch bricks, any kind or colour, by 4½ in.					
1s. 2d. each					
Stretchers cut for Closets and Nicked Double					
Headers, £1 per 1,000 extra.					
These prices are carriage paid in full truck loads					
to London Stations.					
Thames Sand	7 6 0	per yard, delivered.			
Pit Sand	7 0 0	"			
Thames Ballast	6 0 0	"			
Best Portland Cement	36 0 to 41 0	delivered.			
Ground Blue Lias Lime	21 0	per ton, delivered.			
Exclusive of charge for sacks.					
Grey Stone Lime	13 6 to 14 0	delivered.			
Stourbridge Fireclay in sacks 27s. 0d.		per ton at rail-			
way station.					

### STONE.

Yellow Magnesian, in blocks..	per foot cube	£0 3 3	
Red Mansfield, ditto	"	0 2 9	
Red Corsehill, ditto	"	0 2 6	
Darley Dale, ditto	"	0 2 5	
Greenshill, ditto	"	0 2 4	
Clooseburn Red Freestone, ditto	"	0 2 2	
Ancester, ditto	"	0 2 0	
Beer Stone, delivered on rail			
at Sutton Station	"	0 1 1	
Ditto, delivered at Nine Elms			
Station	"	0 1 7½	
Chilmark, ditto (in truck at			
Nine Elms)	"	0 1 10½	
Hard York, ditto	"	0 2 0	
Do. do. 6 in. sawn both sides,			
landings, random sizes..	per foot sup.	0 2 8	

\* All F.O.R. London.

Lo. do. 3 in. slab sawn two	edges, random sizes.....	per foot cube	£ a. d.
Bath Stone—Delivered in rail-	way trucks at Westbourne		0 1 3
Park, Paddington (G.W.R.),	or South Lambeth (G.W.R.),		
Delivered in railway trucks	at Nine Elms (L. & S.W.R.)..		0 1 7
Delivered on road waggons	at Nine Elms Depot		0 1 8½
Delivered on road waggons	at Nine Elms Depot		0 1 9½
Portland Stone—Brown Whit-	bed in random blocks of 20 ft.		
average, delivered in railway	trucks at Westbourne Park		
(G.W.R.), South Lambeth	(G.W.R.), or Nine Elms		
(L. & S.W.R.)..	Delivered on road waggons at		
Pimlico Wharf or Nine Elms	Depot.		0 2 5½
White Baaehed—2d. per foot cube extra.			0 2 6½

### TILES.

Plain red roofing tiles	42 0	per 1,000	Divrd. at
Hip and Valley tiles	5 6	per doz.	ry. sn.
Bransley tiles	50 0	per 1,000	"
Ornamental tiles	52 6	"	"
Hip and Valley tiles	4 0	per doz.	"
Ruabon red, brown, or brindled			
ditto (Edwards)	57 6	per 1,000	"
Ornamental ditto	60 0	"	"
Hip tiles	4 0	per doz.	"
Valley tiles	3 0	"	"
Selected "Perfecta" roofing			
tiles: Plain tiles (Peake's)	46 0	per 1,000	"
Ornamental ditto	48 6	"	"
Hip tiles	3 10½	per doz.	"
Valley tiles	3 4½	"	"
"Rosemary" brand plain tiles	48 0	per 1,000	"
Ornamental tiles	50 0	"	"
Hip tiles	4 0	per doz.	"
Valley tiles	3 8	"	"
Staffordshire (Hanley) Reds or			
brindled tiles	42 6	per 1,000	"
Hand-made sand-faced	45 0	"	"
Hip tiles	5 6	per doz.	"
Valley tiles	5 6	"	"
"Hartsbill" brand plain tiles,			
sand-faced	45 0	per 1,000	"
Pressed	42 6	"	"
Ornamental ditto	47 6	"	"
Hip tiles	4 0	per doz.	"
Valley tiles	3 6	"	"

### OILS.

Rapeseed, English pale, per tun		£28 15 0 to £29 5 0
Ditto, brown		26 15 0 „ 27 5 0
Cottonseed, refined		29 0 0 „ 30 0 0
Olive, Spanish		39 10 0 „ 40 0 0
Seal, pale		21 0 0 „ 21 10 0
Cocoonut, Cochin		46 0 0 „ 46 10 0
Ditto, Ceylon		42 10 0 „ 43 0 0
Ditto, Mauritius		42 10 0 „ 43 0 0
Palm, Lagos		32 5 0 „ 33 5 0
Ditto, Nut Kernel		35 0 0 „ 35 10 0
Oleina		17 5 0 „ 19 5 0
Sperm		30 0 0 „ 31 0 0
Lubricating, U.S. per gal.		0 7 0 „ 0 8 0
Petroleum, refined		0 0 6½ „ 0 0 6
Tar, Stockholm per barrel		1 6 0 „ 1 10 0
Ditto, Archangel		0 19 6 „ 1 0 0
Linseed Oil per gal.		0 3 8 „ —
Baltic Oil		0 3 11 „ —
Turpentine		0 4 1 „ —
Putty (Genuine Linseed Oil)		per cwt. 0 11 0 „ —
Pure Linseed Oil		„ 0 9 0 „ —
"Stority" Brand		„ 0 9 0 „ —



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

Effingham House.

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Chiswick Parochial Charities Trustees Almshouse, Burlington Lane, Chiswick. Plans, Elevation and Sections. Mr. Maurice B. Adams, F.R.I.B.A., Architect.

Branch Premises Erected in Smaller Provincial Towns and for Suburban Branches by Farrow's Bank, Ltd. Messrs. Farrow and Turner, Architects.

Corinthian Capital from the Temple of Jupiter Stator in the Forum, Rome. Drawing by Mr. Reginald J. Slater.

## THE ENGLISH CHANCEL.\*

The industry and energy of Mr. Francis Bond in the writing of books on ecclesiastical subjects seem inexhaustible. During the last few years he has enriched our library shelves with nearly a dozen deeply interesting and scholarly volumes on English churches and their details, and before us lies another of the same series, replete with reliable information, accurate in its logical conclusions, attractive in method of treatment, and, like its predecessors, profusely illustrated from photographs and a few line drawings.

But on this occasion we have a complaint to make against the author at the very outset. The title of the book should be "The English Altar and its Accessories," for we look in vain for a prefatory chapter dealing with the relationship of the chancel to the church as a whole, its relative proportioning and proportions, the significance, if any, of its deviation to north or south from the axial line of the body of the fabric, i.e., whether it is due to profound symbolism or to a prosaic blunder in the setting-out; the development of chapels into chancel aisles, the frequent lengthening eastwards, the building and ultimate occlusion of the chancel-arch; but these points are not referred to, and there is only a passing allusion on pp. 19, 20 to the fact that, while as a rule the chancel was raised one or two steps higher than the nave, where the ground sloped eastwards it was on the nave level, or even below it, as at Myton, between Boroughbridge and Knaresborough—spelt in this volume, by a misprint, "Myton."

Mr. Bond regards the whole church fabric as designed to serve for a shelter and shrine to the altar, on which should be performed with due ritual and ceremonial the Church's central service; and that, in fact, the altar is not there for the church, but the church for the altar. Around this central, most important, and most dignified feature clustered a group of closely connected accessories. Behind it was the reredos; in front, at the penitential season, the Lenten Veil, and, in later days, the altar rails. To the right was a single or double piscina for disposal of ablutions at the altar, and sedilia for the use of the celebrant and his assistants. To the left was set up the Easter sepulchre, to which the Host was transferred to be watched till Easter morn, and in churches in Scotland and on the Continent a sacrament-house, where was reserved the viaticum. The

study of the altar and its accessories is one of exceptional difficulty, the authorities being widely scattered and well nigh inaccessible. The author's aim has been to collect and collate information on these topics from numerous out-of-print volumes and the Transactions of archaeological societies, and papers in our own pages and other professional journals.

much to the utility of the volume, which ought to find a place in the library of every church architect and ecclesiastical student.

The volume is divided into ten chapters, of which the first, treating upon the altar, is the most important. The original altar in the persecuted Christian Church was doubtless the domestic wooden



FIG. 1. THE REREDOS, BEVERLEY MINSTER

and to illustrate them as copiously and comprehensively as possible. The long list of authorities cited in the bibliographies at the end of the volume testifies to the thoroughness of Mr. Bond's research, and the materials so gathered have been put together in the lucid and interesting fashion characteristic of all his work. Carefully compiled indexes add

table—the mensa, and the use of this material has endured in the Eastern Church, and was never quite superseded by stone in the Western Church. Wooden altars were common in England in the Anglo-Saxon Church, and were in use in exception in this country from the Conquest to the Reformation. The square form was the earliest type, and

\* "The Chancel of English Churches," by Francis Bond, M.A., Hon. A.R.I.B.A. Demy octavo, containing 274 pages, with 229 illustrations. Cloth, 7s. 6d. net. London: Humphrey Milford, Oxford University Press.

seems to have continued down to the fourteenth century, after which period the tendency was more and more to adopt an oblong shape. The altar was usually raised but little above the sanctuary, and its steps were very low and broad; most of us will agree with the author that the modern alteration to lofty and steep flights of steps is both inconvenient and

original narrow band to the huge structures filled with statuary which filled the eastern wall in All Souls and New Colleges, Oxford, a wall unpierced, because on the other side was the collegiate hall, those in chantry chapels, and the grandiose fifteenth and early sixteenth century detached screens at St. Alban's, Winchester, Southwark and Milton Abbey. We reproduce, by the courtesy of Mr. Humphrey Milford, as one of five illustrations from the work before us, a photographic view from the west (by Mr. J. F. Hamilton) of the much-restored reredos in Beverley Minster. The realistic renderings of plant and leaf show that the carving belongs to the first rather than the second quarter of the fourteenth century; the treatment of the foliage of the capitals, corbels, and bosses of the eastern side is more advanced in type and belongs to the second quarter of the century. Mr. Bond does not mention, and possibly was not aware, that a great part of this western front is a modern

years afterwards one Comins, master mason of the fabric, began a restoration, based on fragments which had been found, and this was completed in 1826. Quite recently vacant niches have been filled with statues of saints and kings of Northumbria, executed by Mr. Nathaniel Hitch, and the panels over the altar were filled by Messrs. Powell with mosaics, all the work being under the supervision of the late J. L. Pearson, R.A.

In a chapter dealing with the Communion table, it is pointed out that in the reign of Edward VI. stone altars were directed to be replaced by wooden tables, and although in 1559 Elizabeth expressly permitted the retention of stone altars, the ancient altar of stone was generally superseded by wooden Communion tables. At first these were supported on trestles or legs with spreading flange feet, but later on, when the tables were raised in height and provided with a tread-rail, great bulbous, melon-shaped swellings were built up on the legs, and the melon pre-



FIG. 2. PILLARED PISCINA, BOSHAM.

dangerous. Although the terms baldachin and ciborium are often employed as synonyms, it is best to confine the latter to the pavilion in which the sacrament is reserved and the former to the canopy by which dust is excluded and dignity imparted to the altar. Of the baldachin proper he notes there are no ancient examples in England over altars, but there are five instances of an altar canopy, chiefly in Herefordshire and Salop. The five crosses usually incised on an altar are often alleged to be memorials of the Five Wounds of Christ, but in reality they mark the places where the bishop touched the slab with the holy oil in the act of consecration. In the Early Christian churches there was but one apse, and one altar, but gradually the practice grew to provide lateral and subsidiary altars, many of which in this country were destroyed between 1549 and 1554. The presence of an enlarged window at the east end is, the author suggests, always a presumption of the former existence of a chantry chapel within the aisle, as is also the survival of raised platforms.

The term reredos came into common use in the fifteenth century, though the fitting itself was generally erected in the fourteenth or twelfth century; but long after the minor altars were provided with a reredos the high altar had none, the stained glass of the great east window often serving in its stead. Mr. Bond traces the development of the reredos from the

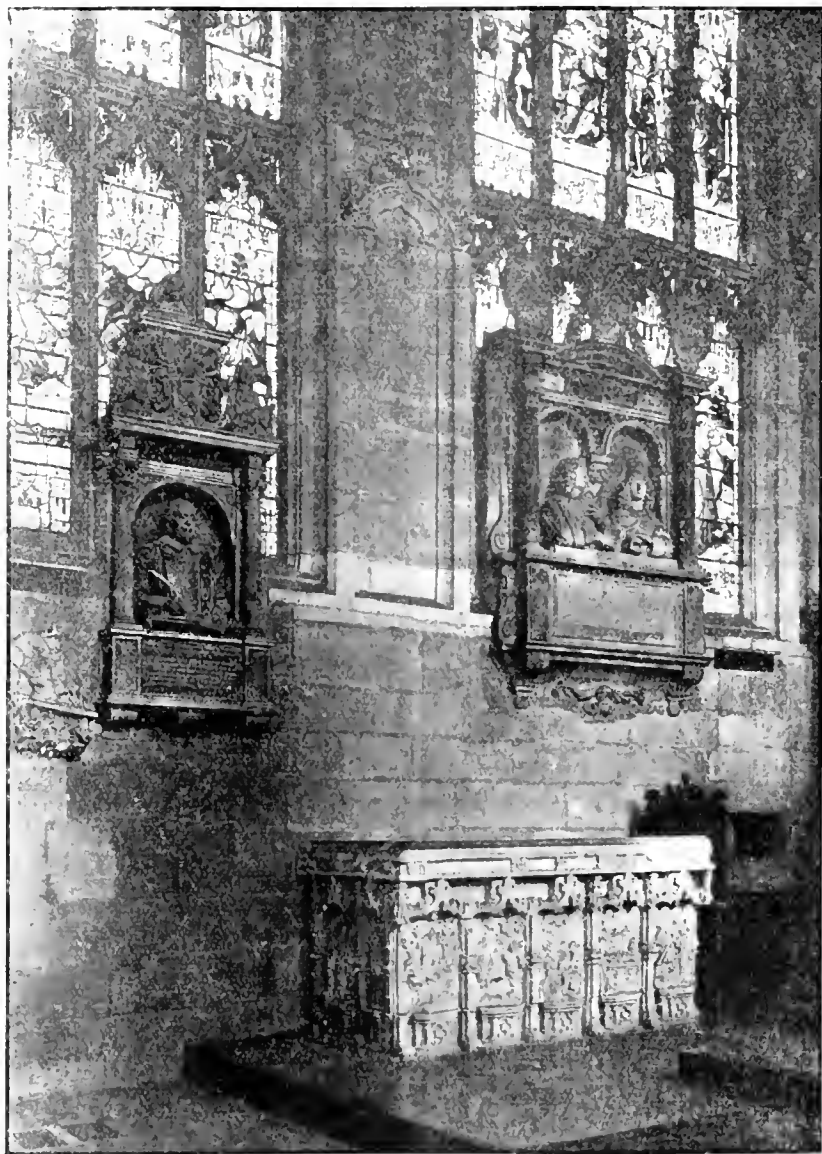


FIG. 3. DEAN'S TOMB (BASE FOR EASTER SEPULCHRE), HOLY TRINITY, STRATFORD-ON-AVON.

work of restoration. When the Society of St. John of Beverley was dissolved in 1549 the statuary of this façade of the screen was defaced and mutilated, and at a later period was covered over with plaster, on which were painted the Commandments, the Lord's Prayer, and the Creed, in the eighteenth century. Still later a casing of oak was erected in front of it, and remained in position till 1815. A few

scently degenerated into an elongated bulb. Towards the end of the seventeenth century the massiveness of the old furniture diminished more and more, and the Communion tables shared in the newer lightness of design, until in the eighteenth and well into the nineteenth century these tables were of the smallest, meanest, and most paltry description, being sometimes made of deal and grained. Before the

Reformation there was no need of altar-rails, for the altar was already fenced by the screen. In the days of Elizabeth there were bitter controversies between the Puritans and the High Church party as to the posture of the Communicant and as to the position of the table and its rails. The protest of the former party took the forms of taking the sacred host in their pews or of sitting at table in domestic fashion, and many contemporary Communion tables had leaves which could be inserted so as to lengthen the slab, while in some instances tables were ornamented or inscribed on all four sides, showing that they were intended to stand in an isolated position, so that the communicants could sit around it to partake of the Lord's Supper. When Laud acceded to power he insisted that the holy table should occupy the position of the high altar and should be railed in on three sides. The Puritans brought the table forward once more, and placed an additional set of seats and rails on the east side. Examination of altar-rails will show that they follow in style the contemporaneous patterns of tables and chairs and the balusters of the stairs of pulpit and gallery.

Another very interesting chapter treats upon the piscina, which, except where found in a sacristy, is evidence of the neighbourhood of an altar. Till the middle of the thirteenth century an English piscina had a single drain, then until the early years of the fourteenth century it was double, but early in the fifteenth century reverted to the single form. In the finest examples, from the twelfth to the fourteenth century, the piscina was united with the sedilia. Fig. 2, from a photograph by the Rev. F. Sumner, shows the piscina at Bosham, near Chichester, *c.* 1250, where the basin rests on a dwarf pillar and has above it a pointed and trefoiled arch.

The credence or side-table for the reception of the Eucharistic elements before consecration derived its name from the fact that here the elements were tasted by a trusted person as a precaution against poisoning. The evidence is scanty for the existence of credence tables in pre-Reformation times, but credence shelves, usually of small dimensions, abound.

Sedilia are probably survivals of the seats of presbyters. There are a few Norman examples, many of the thirteenth century, but the largest number date from the fourteenth century. They are nearly always placed on the south side of the altar, but are rarely found on the north; at Helpston and Durham Cathedral they are on both sides. A few examples occur in south aisles and in transepts. The normal number of seats is three, but there are many exceptions.

The aumbry, as its name suggests, was a cupboard in the wall near the altar, and, with few exceptions, was an un moulded square or oblong recess. Occasionally it was used as a receptacle for a reliquary, and in later times for deeds and indentures. The author doubts whether it was often employed in England for a reservation of the Sacrament, although in Scotland, as in Italy and Germany, the provision of Sacrament houses was usual.

The provision of an Easter sepulchre was very common in English churches prior to the Reformation, and the ceremonies attending to it were elaborate, including its continuous watching from Good Friday until Easter Sunday. Within the sepulchre for that period was put an image of our Saviour having a void in the breast, wherein the Host was placed. Three forms of Easter sepulchre were to be found: a temporary structure of wood, more rarely a masonry tomb, or in some cases a chest or canopied tomb with a flat



FIG. 4.—EASTER SEPULCHRE, PATRINGTON.

upper slab was utilised on which to place the wooden framework. Of wooden examples only two are believed now to exist. Most of the so-called Easter sepulchres are merely pedestals for the temporary frame-

work, and frequently table tombs were thus utilised as supports. To this class belongs the one against the north chancel wall in Holy Trinity, Stratford-on-Avon, shown in Fig. 3, from a photograph by the Rev.

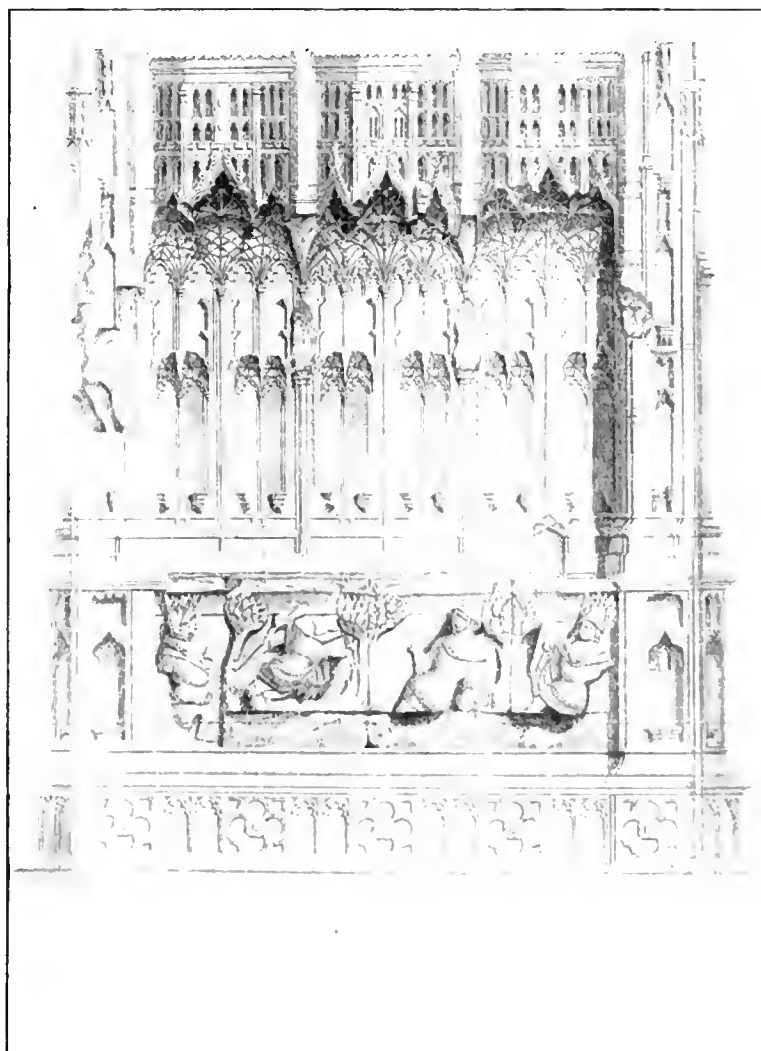


FIG. 5.—EASTER SEPULCHRE, NORTHWOLD.

F. Sumner; the sepulchre slab is supported by the richly carved tomb of Dr. Thomas Balsall, dean of the college of Stratford, 1465-91, who re-edified this church in 1491. Of the two Jacobean mural monuments above, that to the left is the well-known memorial by Gerard Johnson to Shakespeare. The busts to the right are a generation later, and commemorate Richard Combe and Judith Combe, his cousin and intended wife. From the Easter sepulchre reposing on a table tomb is no long step to that which is placed in a niche of its own in the chancel wall. To this class belong such examples as those shown in Figs. 4 and 5, which display the richest design of the half-century before the advent of the Black Death. In both, as well as in other instances, the intent of the structure is clearly marked out by the representation of the sleeping Roman soldiers. Fig. 4, from a photograph by Mr. C. Goulding, shows the very perfect sepulchre in the fine cruciform church of Patrington, "the glory of Holderness"; it consists of four tiers of compartments under a rich cinquefoiled moulded and crocheted canopy; in the lowest are the three sleeping soldiers, the keepers of the tomb, and in the third the Saviour is represented rising from the tomb, with a censuring angel to right and left. Fig. 5, from a drawing in the Transactions of the Norfolk and Norwich Archaeological Society, shows the sadly mutilated example at St. Andrew's, Northwold, near Stoke Ferry, South-West Norfolk. It is 12 ft. high and 9 ft. long, being one of the largest in England, and dates from the second half of the fifteenth century.

In a chapter on squints, Mr. Bond shows that these were provided to look upon the high altar or minor altars from within or without the church. These positions will sometimes enable one to ascertain the original length of the chancel and position of the principal altar.

We have freely drawn upon the very interesting volume before us in order to indicate the freshness and charm of Mr. Bond's treatment of his subject, and the permanent value and interest of the work.

The Alexandra Hotel at Bridlington, which has recently changed hands, is to be extensively enlarged after the war, the intended extensions including the addition of 300 bedrooms and five open baths.

At Nottingham new corporation baths have been built on the site of the old tramway stables in Maskham Place from plans by the city architect, Mr. A. Dale. A swimming pond, 100 ft. by 30 ft., and nineteen private baths are provided.

The Local Government Board will hold an inquiry at the Green House, Hallow, to-morrow (Thursday) into an application by the Martley Rural District Council for sanction to a loan of £1,000 for sewerage and sewage disposal works in the parish of North Hallow.

At a recent meeting of the Gladstone Statue Committee of Edinburgh final approval was expressed of the site selected for the Gladstone statue, which is to be placed where the present Alexander and Bucephalus monument stands in St. Andrew Square. The Alexander and Bucephalus statue is to be removed to the Council Chambers quadrangle.

The Roman Catholic Church of Our Lady of Sorrows in Cirencester and Desborough Streets, Paddington, has been extended, and a classroom and concert-hall have been added from plans by Messrs. Tasker, Williams, and Major, of John Street, Bedford Row. The builders were Messrs. E. R. Rome and Co., of Hackney. Cardinal Bourne dedicated the new buildings on the 14th inst.

The restoration of Hexham Abbey baptistery having been successfully accomplished through the efforts of Canon Savage, the dedication service took place on Sunday in last week. The restored font-cover is built in stories, and its total height is 20 ft. 6 ins. In scale it is the tallest in England, that at Ufford, near Woodbridge, East Suffolk, the loftiest hitherto, being 13 ft. 9 ins.

## HOUSING PROBLEMS AFTER THE WAR.

We conclude our report of the recent Housing Congress, at Caxton Hall, Westminster (p. 376 *ante*), by giving abstracts of four papers for which we could not find space in our last issue.

### HOUSING AND TOWN-PLANNING IN LANARK.

A paper on "The Preparation of Housing and Town-Planning Schemes to be Placed in Operation after the War" was submitted by Mr. W. E. Whyte, District Clerk, and Mr. W. Ross Young, Town Planning Engineer, for the Middle Ward of Lanarkshire. This ward is an industrial mining centre, having a population of 210,000, in which it has been found necessary by the local authority to close a considerable number of insanitary houses, resulting in a serious shortage of working-class housing accommodation. Two years ago the local authority propounded a scheme for the erection of 150 workmen's dwellings which has now been almost completed. The houses are of varying accommodation, namely, one room and kitchen, two rooms and kitchen, and three rooms and kitchen, with all conveniences, including bath, hot water, w.c., larder. The houses are built of brick and roughcast; they are erected in blocks of two, and the pre-war cost of each house was estimated at £204, £231, and £237 for the several classes, the rents, exclusive of rates, being fixed at £13, thirteen guineas, and £14 per annum. The authority had now embarked on a further scheme for 200 workmen's dwellings of similar accommodation to the above mentioned, the present cost being estimated, however, at £267 for one room and kitchen, £302 for two rooms and kitchen, and £316 for three rooms and kitchen. The net loss on these dwellings might be estimated at over £2,500 per annum, and the authors suggested that the Government should be asked to contribute a proportion of this deficit under the Housing No. 2 Act of 1914. In a second portion of the paper reference was made to the lengthy and extensive negotiations and inquiry involved before a town-planning scheme can receive the approval of the Local Government Board and of Parliament. It was urged that the Government should come to the aid of the local authority, and should make up the difference which could be proved to be reasonably due to the anticipation of such works for the purpose of providing employment.

### THE FUTURE OF HOUSING IN MINING DISTRICTS

Mr. T. H. Cann, secretary of the Durham Miners' Association; Dr. T. Eustace Hill, county medical officer for Durham; and Mr. W. Straker, secretary of the Northumberland Miners' Association, submitted a paper which dealt with the special difficulties of housing for miners in the two counties which they represented. The miner had, they remarked, a special preference for a large living-room or kitchen, and owing to the comparative smallness of the rooms would not look with favour on any of the adopted and suggested plans of model dwellings. A very much larger proportion of the mining population in the two northern counties lived in two and three-roomed tenements than was the case elsewhere; the number of persons per tenement, or private dwelling, was higher than in other parts of the country; and the overcrowding of these tenements was excessive and deplorable. This serious overcrowding showed a tendency to increase, and was largely due to the "free house" system by which for generations past the coalowners had provided married miners with a "rent-free house with coals, the rent allowance in lieu of a free house being not more than 3s. or 4s. a week. They suggested that district authorities ought to be required to provide the needed accommodation, and that these should be self-supporting. The authorities should be given powers to obtain land at a reasonable cost, and the erection of flats or tenements should not be permitted, nor should any dwelling contain less than three rooms, each dwelling to be provided with a bathroom and w.c. For single men model lodging-houses should be built in the larger mining centres. The writers held that a revision and modification of existing Public Health and Housing Acts are urgently needed, and that a special Government department, with a

Minister of Public Health at its head, should be set up which should be responsible for all matters relating to hygiene, housing, and sanitary matters generally.

### SLUM DESTRUCTION, AND THE HOUSING OF THE VERY POOREST.

An important paper on this subject was read by Mr. Henry R. Aldridge, secretary of the National Housing and Town-Planning Council, in which were discussed the best means to be adopted in order to secure the abolition, or transformation, of houses unfit for human habitation; the suppression of overcrowding; and the transfer of those living in unfit dwellings, or under conditions of overcrowding, into healthy homes and surroundings. The progress made in the destruction of slums unfit for human habitation had been quickened since the passing of the Housing Act of 1909, but was still, Mr. Aldridge urged, lamentably slow. He held that a new policy of attack on the slum must be adopted, and begged, therefore, that all those who let houses for habitation by the working classes should be required by Act of Parliament to apply to the local authority for a certificate, to be issued free of charge, renewable every three years, certifying that the house was in all respects reasonably fit for human habitation. At the end of five years from the passing of the Act no house in regard to which such a certificate was not possessed by the owner should be inhabited. Such a proposal would—if carried into effect—give far greater power to the local authority of dealing with slum conditions than they had ever possessed in the past. As to the suppression of overcrowding, there were, he pointed out, two standards relative to overcrowding in existence. The first was that of the Public Health Act. Overcrowding was there defined as follows: "Any house, or part of a house, so overcrowded as to be dangerous or injurious to the health of the inmates, whether or not members of the same family." The second standard was, he pointed out, that of the Registrar-General, who regarded a dwelling as overcrowded if throughout the dwelling there was an average of *more* than two persons to one room. From the point of the law the second standard did not exist. It had been taken by the Registrar-General as the basis of his statistical work, but was not to be found in any Act of Parliament. This indefiniteness of the law in regard to overcrowding must be made to disappear, if only because we could not as a nation afford to tolerate conditions which made for unfitness of physique. Provision ought to be made by legislation to secure that a local authority should be forbidden by Act of Parliament to permit the occupation of a dwelling with an average of more than two persons to one room, or alternatively, the occupation of any room as a sleeping room with a less provision than 400 cubic ft. of air space per adult. Dealing next with the rehousing of the poorest, it was clear that in those cases in which the families forced out of unfit and overcrowded houses could afford to pay the economic rents of good dwellings there was no difficulty other than that of the increase of the normal supply. But the task of rehousing those families whose collective earnings were not sufficient to enable them to pay economic rents formed the crucial problem of the housing reformer. During recent years many efforts had been made to solve it by legislation. The Unionist housing policy was one of aid to local authorities to house the poorest members of the community at a loss and to meet the deficit in the finance of housing schemes by State grants; whereas the Liberal housing policy, whilst providing for the giving of general grants in aid of housing efforts by local authorities, had as its central feature the raising of wages in order to secure that all classes of the community should be enabled to have decent housing accommodation. He considered that these two policies could be brought into harmonious relation and by common agreement, both lines of attack on the slum could be adopted. Already the Labour Party had adopted a line of policy combining both these policies. He suggested, therefore, that the State should take the necessary legislative action to secure that in each normal family the wages earned



should be sufficient to provide decent housing accommodation, as well as other necessities of life; and that where it was only possible to achieve this result by a series of steps the local authority and the State should, acting conjointly, bear the difference in cost between the rent of a decent dwelling and the rent which the tenants could afford to pay. At the end of the process of raising wages the houses to be let at their full economic rents.

#### METHODS OF DEALING WITH INSANITARY HOUSES IN RURAL AREAS.

Dr. William G. Savage, County Medical Officer of Health for Somerset, in a paper on this subject, remarked that before the war there was a marked shortage of houses in a good many parishes and generally a widespread tightness and insufficiency in the number of houses. Many houses were thus below any reasonable standard of suitability, but owing to a variety of causes, such as the scarcity of houses, the necessity of having houses to let at a low rental, low standards on the part of the housing authority were allowed to be occupied so long as their owners did not allow them to get into too bad a condition. Further, a very large number of houses showed serious defects but could hardly be classed as "unfit for habitation" with present standards. It was recognised as impossible in purely agricultural areas and very difficult in other rural areas to build cottages at a cost which would make them self-supporting from the rents which could be obtained, and there was naturally decided opposition on the part of local sanitary authorities to build houses unless they would be self-supporting. Since the war broke out there had been a marked diminution of routine inspection of houses and a marked lowering of standard as to what was considered "unfit for habitation" and as to the defects which should be remedied to make a house habitable. In many parts of the country very little money was being spent on keeping houses in repair, due to a number of causes, such as want of pressure on the part of the housing authorities, the natural desire to save all money possible for war loans and other purposes, the great scarcity of men to carry out the repairs and the prohibitive price of building materials. Obviously a policy of this kind will lead, as it had led in the past, to a "vicious cycle." Unfit houses will not be closed because there are no houses for the dispossessed to occupy; the need for new houses will be unrecognised, or at least not admitted, since the occupants of the unfit houses will not be looked upon as needing houses as they are already in occupation of houses which have not been condemned. To obtain satisfactory houses and a sufficiency of houses in any area three things are required to be carried out by the housing authorities: Systematic and adequate routine inspection of the houses in their area with an unflinching and impartial "representation" as unfit by the officers of the local authority of all houses which on public health grounds are "unfit for human habitation," and without any regard to whether there are houses available if they are closed; the recognition of a definite standard of habitability and the exertion of their legal powers to have insanitary but not unfit houses brought up to this standard; and, lastly, the provision of a sufficiency of houses to meet both actual shortage and to take the place of condemned houses. The problem of dealing with unfit houses could not be separated from the problem of the provision of a sufficiency of houses. The cure for unfit houses was the provision of more houses. After the war housing difficulties will be enhanced owing to the increased cost of construction, an increase which is unlikely to be compensated by a commensurate increase in wages. A clear statement as to the policy of the Government and a definite policy of active pressure to induce local authorities to prepare schemes were both urgently needed.

The corporation of Lowestoft are seeking sanction to borrow £16,500 for works of reconstruction for foreshore protection as follows:—North Beach, rebuilding sea wall, £2,801; reconstruction of groynes, £6,461. South Beach, suggested reversion from G groyne to M groyne (near Cliff Road), £5,339; reconstruction of groynes, £1,792.

## Currente Calamo.

We welcomed some time since the formation of the Civic Arts Association, of which Miss H. E. Cropp is the secretary, and the headquarters of which are at 28, Princes Gardens, S.W. The object of the Association is the amelioration of those civic arts without which no towns fit to live in can be created, extended, or improved, and without which no rational interest can be bestowed upon or maintained in town or village. The organisation of all national resources for the tremendous struggle we are now engaged in—for the war and its conclusion—is, of course, the first preoccupation of all good citizens, but if we are to attain and keep the full benefits after the war of that civilisation for which we are now making such immense sacrifices, we must look ahead. In the reorganisation that will follow this time of destruction and disturbance the arts cannot be left out of count. They are an important part of the resources of a nation. In many forms they must of necessity be applied to the work that will come with peace. We are glad to note that among the earliest objects to which the Civic Arts Association is directing its energies is the encouragement of war memorials of a better class than usual. With this view it is organising an exhibition at the R.L.B.A., in July next, of designs for such for which it is arranging a competition, particulars of which will be found on another page. The prizes offered are substantial and should elicit a fitting response from artists.

Once again the effect of Mr. Lloyd George's Finance Act of 1909-10 is visible in the reduction on the last quinquennial assessment of London, the decrease being about £80,000, the effect of diminishing values of property. From 1871 to 1906 each quinquennial revaluation resulted in considerable increases in the rateable value of the metropolis. Since 1906 the decrease has been continuous. The new quinquennial shows increases in the City of London, Westminster, St. Marylebone, and Holborn. There is also an increase at Poplar. The principal decreases are at Islington, Southwark, Deptford, Finsbury, Camberwell, and Bermondsey.

A despatch from the Governor-General of Canada reports that draft plans of the remodelled Parliament Buildings at Ottawa are now complete. They are, of course, more or less tentative and will have to be approved formally by the Cabinet and Parliament. It is thought, however, that they will be carried out substantially without alteration. As to cost, no definite estimate has yet been made, but it will probably be in the neighbourhood of £300,000. It will take about a year and a half to execute the work. The main features of the new plans are the preservation of the present architectural scheme of the whole front elevation, the construction of a larger chamber for the House of Commons, a rearrangement of the office space in the interior, which will give 38 per cent. increased accommodation, a larger gallery for spectators, a more spacious members' lobby, and big lounge, smoking, reading, and committee rooms. The plans are being carried out by a committee representing both sides of the House of Commons, and it is expected that the work of reconstruction will be begun this spring.

The newly-formed Art League in Germany has as its avowed aim to oppose the further

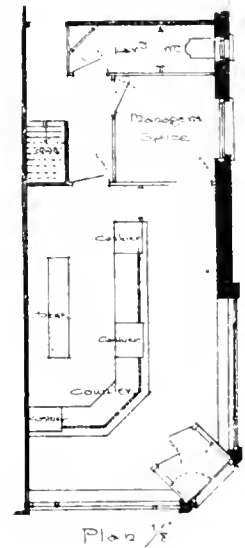
construction of monuments and edifices "shocking to art and taste," and more particularly in reference to monuments of the war. This is understood to be a direct attack upon the hideous gigantic statue of Hindenburg into which nails have been hammered. Berlin, as every visitor knows, is vulgar in all appertaining to architecture, and nothing could offend the artistic sense more than the Siegesallee with its rows of Hohenzollern monstrosities in marble. The Kaiser's pretentious pose as an expert in art matters, whether pertaining to statuary, painting, music or the drama, have been ridiculed by Germans themselves; but few who have protested have shown much evidence of their qualifications as critics. Good taste is a quality which has little in common with German "Kultur."

"Country Clubs" for Working Men are among the social projects of the near future. A correspondent of the *Newcastle Daily Chronicle* says one of the best is to be provided somewhere in South Durham. A site of five acres in extent has been acquired, and here it is proposed to erect a club which will comprise reading, smoke, committee, billiard, and conversational rooms. Included in the scheme is a concert hall, a public hall, and a caretaker's house. The grounds will be laid out in garden or shrubbery form, and will include a bowling-green, a fives court, and a quoit ground, whilst space is also provided for a bandstand. This undertaking will entail an expenditure of £15,000. Anything of the kind that would facilitate the egress of the workers from the town to rural surroundings, where recreation and refreshment could be enjoyed in comfort and moderation, would, if successful, find imitators in other districts, and legitimate and much-needed work for architects and builders.

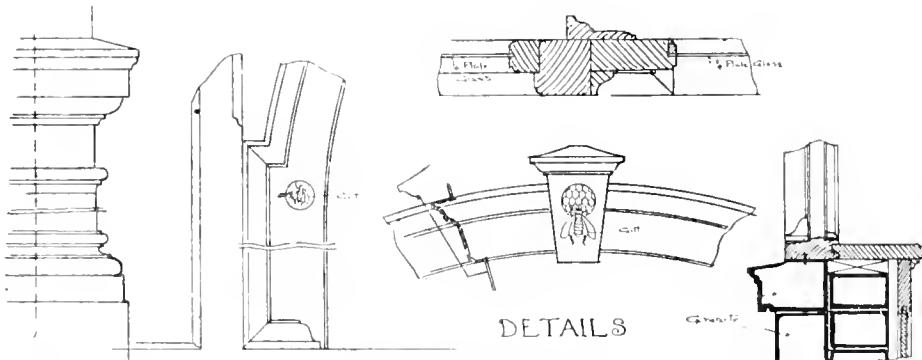
Conscientious objectors' reasons for objecting to military service seem to be very monotonous ones as a rule. Of old—at any rate among the Jews—exemption could be claimed on four grounds, which will be found set out in the twentieth chapter of the Book of Deuteronomy, verses 5, 6, 7, and 8. A man who had not already dedicated a newly-built house was compulsorily discharged from the army, with instructions to "return to his house, lest he die in the battle and another man dedicate it." So with the man who had planted a vineyard and had not used the fruit thereof, or with the man who was betrothed in marriage. Finally, those who were fearful and faint-hearted were bidden to go home, lest they caused the hearts of their fellow-warriors to faint. As our rulers have set their faces like flints against house building, the chances of exemption under the first head would seem to be few. Vineyards are scarce here. When recruits are eager to marry, it seems with the prudent motive of securing allowances to their wives. The last, the coward's excuse, seems really the only one in which Scriptural precedent can be honestly pleaded, and, perhaps admitted, for all the use such compulsorily enlisted warriors are likely to be in the day of battle.

There has been placed in the vestry of St. George's Church, Stamford, a framed copy of an illuminated manuscript in the Bodleian Library, Oxford, depicting of William de Bruges, First Garter King at Arms, who restored the edifice in the 15th century. A card attached bears the inscription: "William de Bruges, First Garter King at Arms, the Rebuilder of this Church. In memory of James Frederick Cunn, LL.D., rector, 1890-1910."

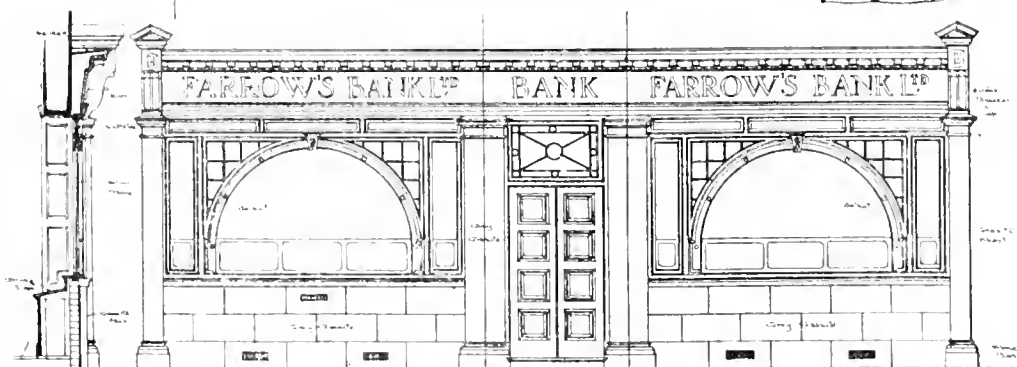
DESIGN ADOPTED  
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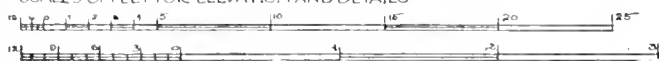
DETAILS



SECTION

EXTENDED ELEVATION

SCALES OF FEET FOR ELEVATION AND DETAILS

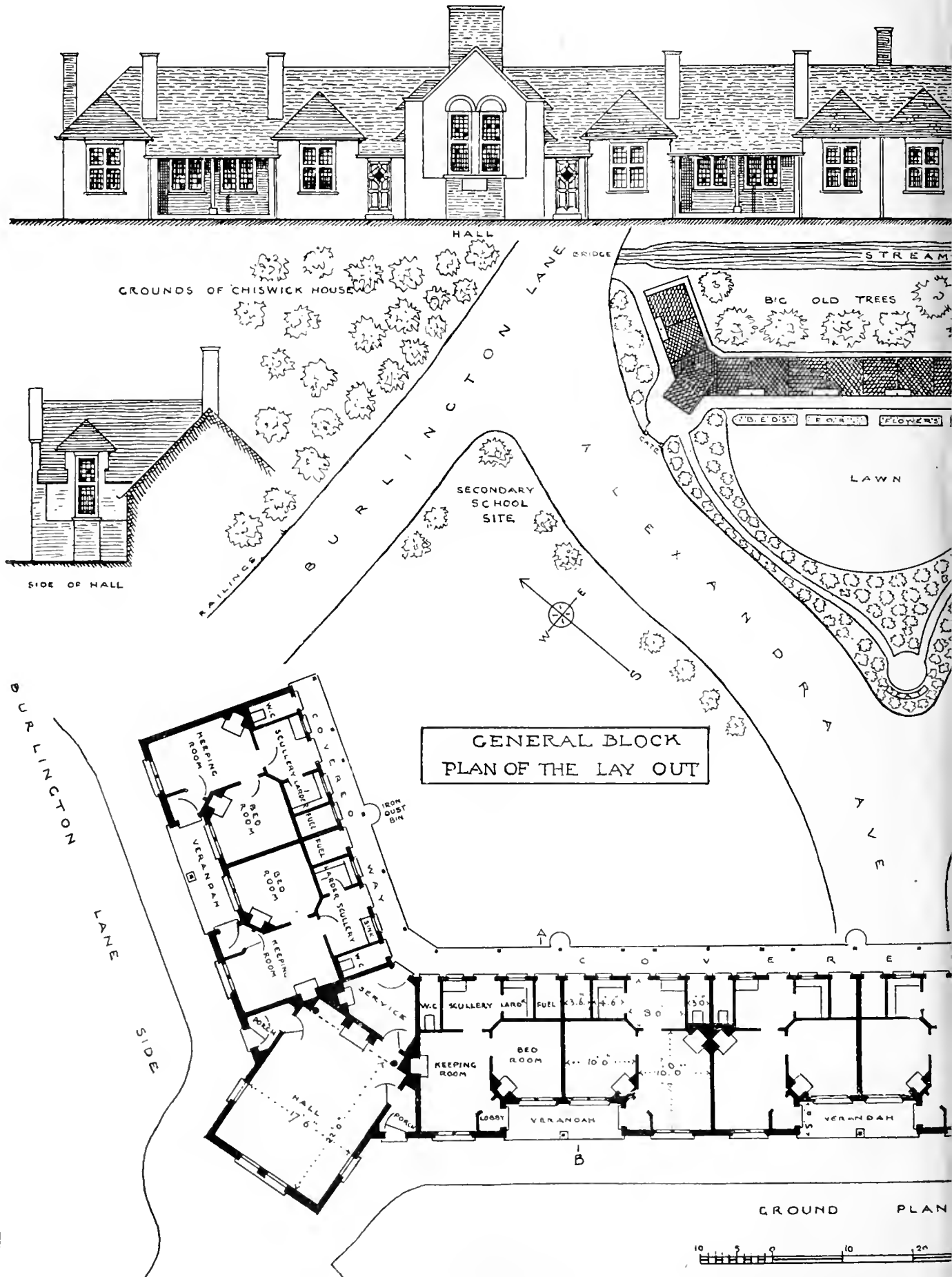


*J. R. Farrow & Turner*  
FARROW & TURNER  
Architects  
Amberley House, Norfolk St  
STRAND W.C.



407-426

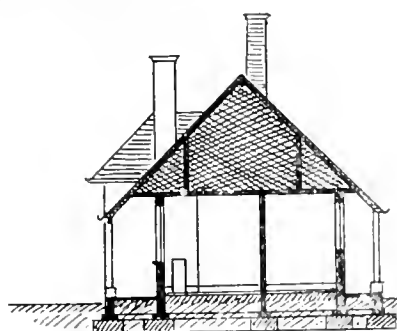
CHISWICK PAROCHIAL CHARITIES TRUSTEES *ALMSHOUSES*, PRO



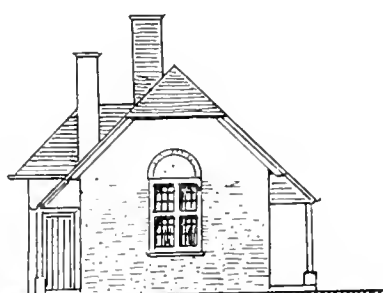


STREAM

DEVELOPED ELEVATION OF FRONTAGE

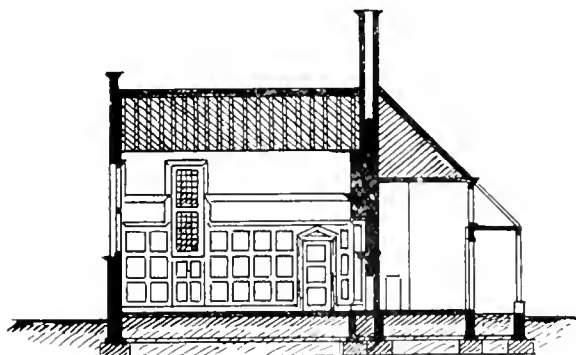


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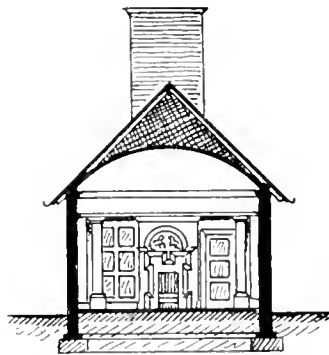


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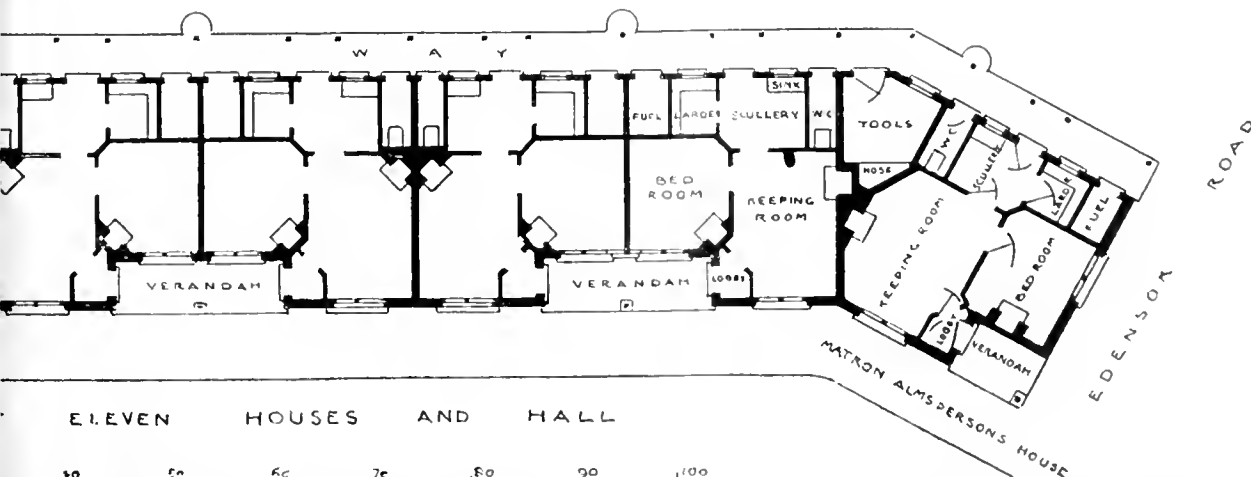
F I E L D S



LONGITUDINAL SECTION HALL



A CROSS SECTION OF THE HALL

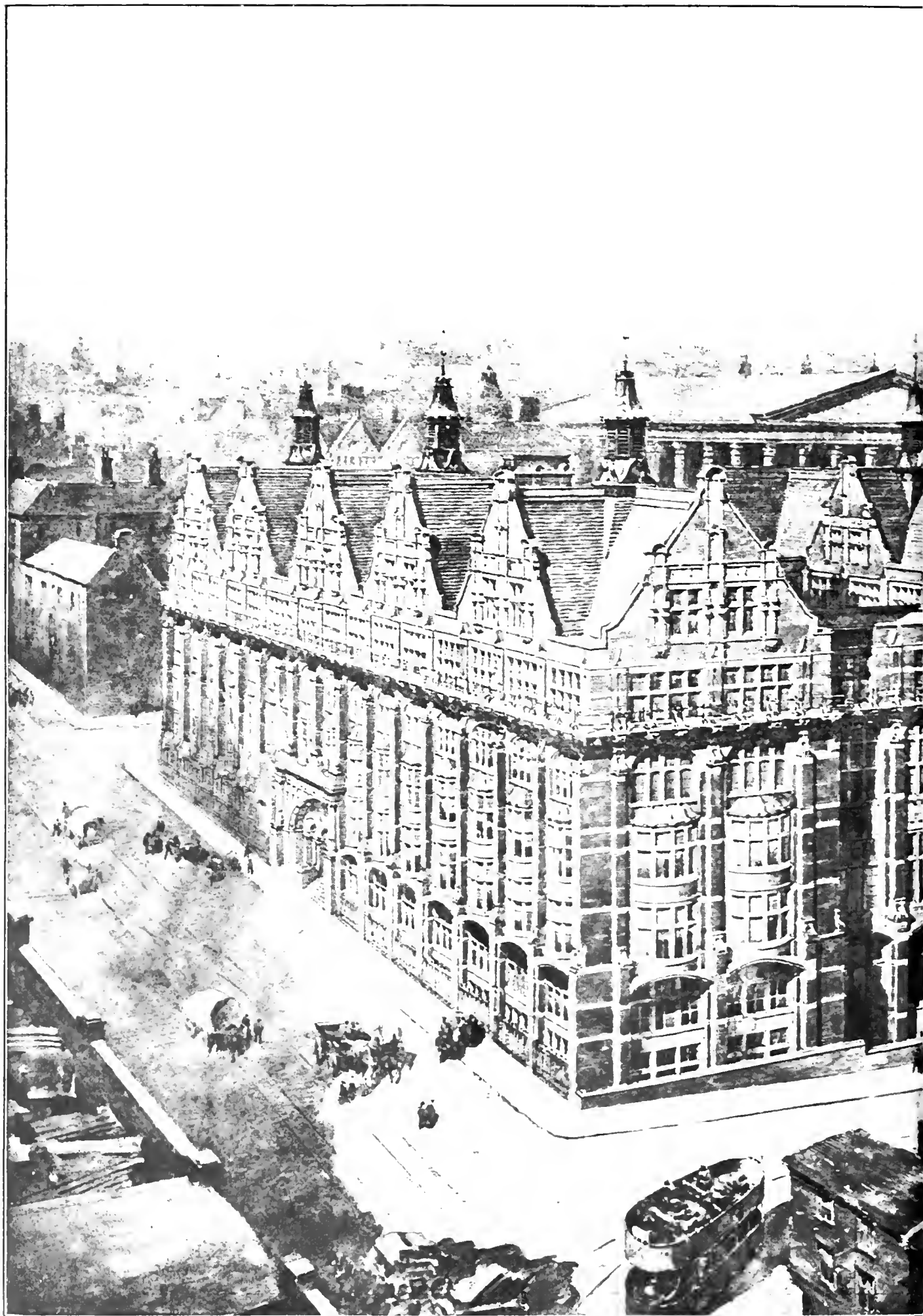


ELEVEN HOUSES AND HALL

MAURICE B ADAMS F.R.I.B.A. TRUSTEE & ARCHITECT







THE MUNICIPAL TECHNICAL SCHOOL NEW EXTENSIONS, NAVIGATI

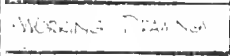




STREET, BIRMINGHAM.—Messrs. Nicol and Nicol, A.A.R.I.B.A., Architects.



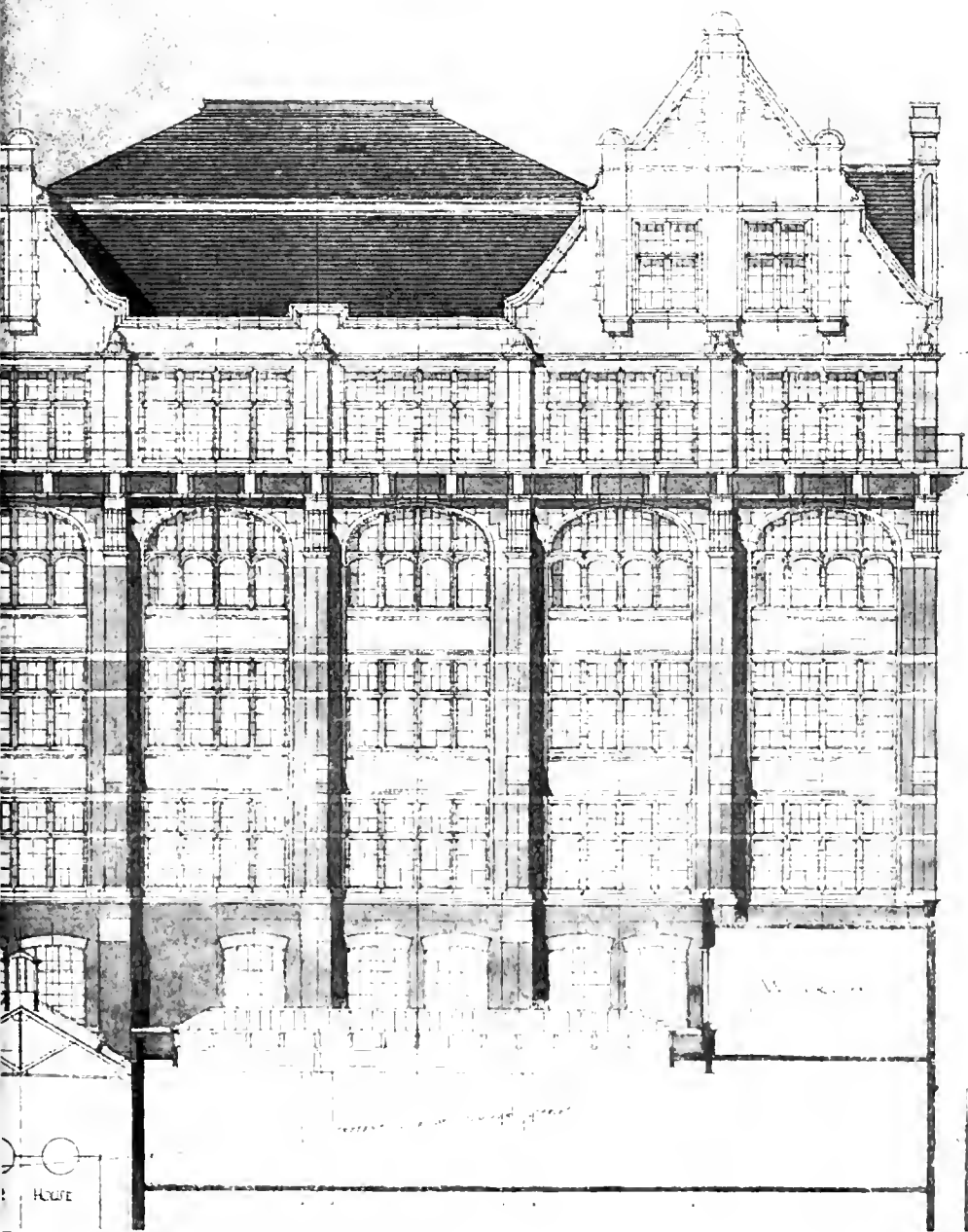




THE MUNICIPAL TECHNICAL SCHOOL NEW EXTENSIONS, NAVIGATION STREET

APRIL 26, 1916.

MUSICAL SCHOOL EXTENSION

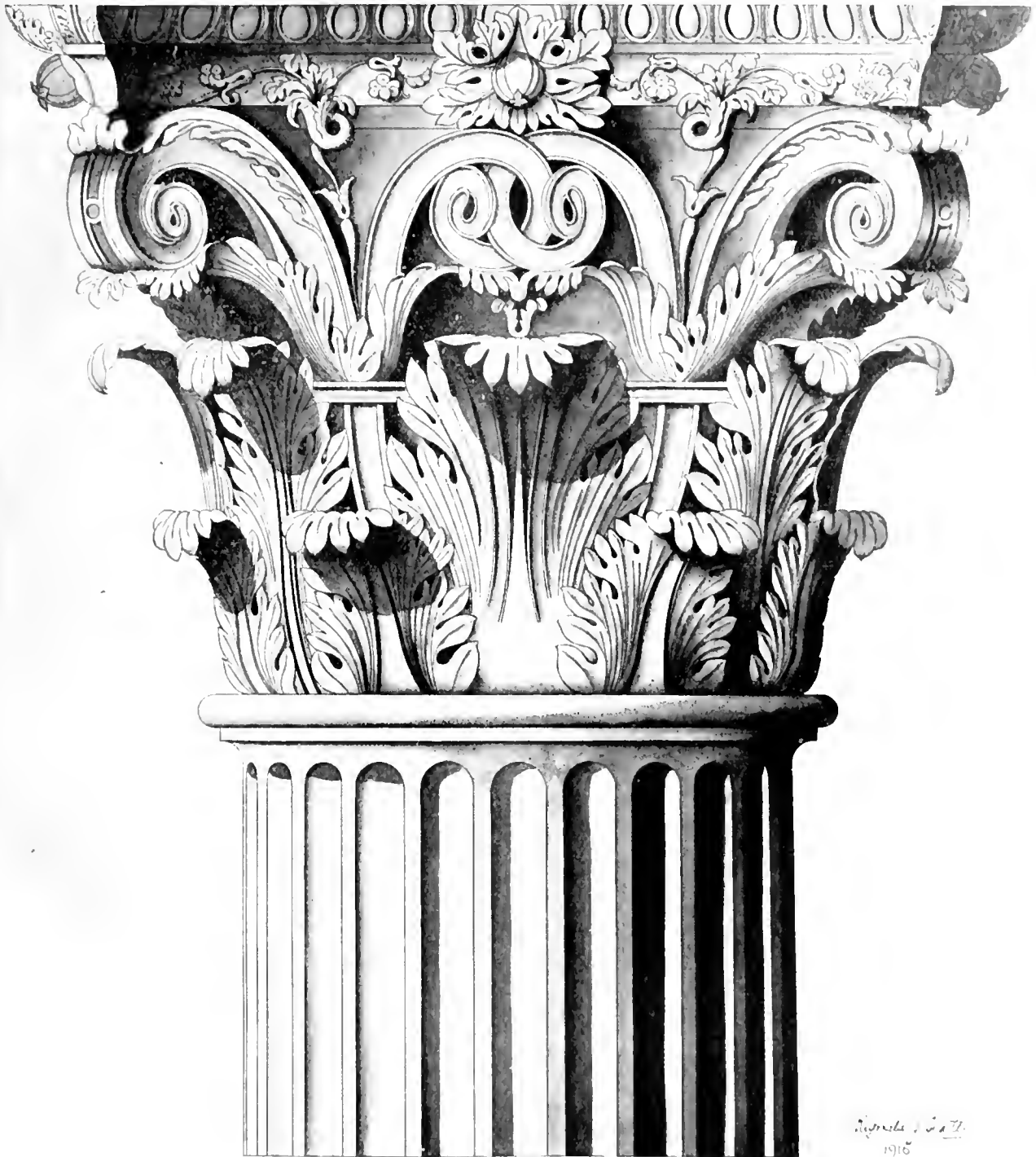


BIRMINGHAM: SUMMER STREET FRONT. Messrs. Nicol and Nicol, A.A.R.P.A., Architects.





## CORINTHIAN CAPITAL (ROMAN)



FROM THE TEMPLE OF JUPITER STATOR, ROME.



## Our Illustrations.

### THE MUNICIPAL TECHNICAL SCHOOL, NAVIGATION STREET, BIRMINGHAM.

We are giving some plates of this building intended to be completed after the war, from the working drawings of the architects, Messrs. Nicol and Nicol, A.A.R.I.B.A. The completed scheme shown by the accompanying view will occupy three sides of an island site adjoining New Street Station at its western end, near the Town Hall and the New General Post Office. By an arrangement with the railway companies, Summer Street (an unimportant thoroughfare) has been closed, and will be added to the school site. The position renders it easily accessible from all parts of Greater Birmingham by rail or tramway. The necessity for more class room and laboratory accommodation for technical education has been realised in Birmingham for a considerable time. The first section of the school, erected over twenty years ago, has been found quite inadequate; branch classes have been established in secondary education schools, temporary workshops and class-rooms for teaching many trades have also been housed in the upper parts of commercial buildings adjoining the site. The Principal, Dr. Sampner, and Mr. Thomas Reid, head teacher in the engineering department, so soon as war was declared realised that much more could be done at the school to train munition workers, and pupils not being of military age have been prepared to take their places as workmen in the munition factories of the city. The site has been cleared, and, together with the site of Summer Street, has been taken over for the purposes of the school extensions. temporary sheds have been erected and machines installed for teaching how to mould, turn, and fit shells and grenades, etc. The future extension of the school will not, however, be used exclusively for the preparation of appliances for the arts of war, but will be available also for advancing the arts of peace and commerce. Much has been learnt from similar institutions in the United States of America and Canada, and in the original scheme for this school from Germany and Austria, the Transvaal and Australia. It is not only in our Colonies that we are being overshadowed, for during the last ten years in Germany and Austria enormous sums have been expended in the erection of special buildings for compulsory continuation or vocative school purposes in all trades where apprentices are employed. These are quite distinct from the Continental Technological Institutions, which take the place of our scientific universities, and must be differentiated from the technical schools of this country, which are essentially voluntary in character, have no age limit, and do not include in their curriculum elementary subjects. The problem of planning so large a building on a restricted city site to accommodate so many departments with large and small laboratories and lecture-rooms is, of course, a difficult one, and has been met by adopting a repeating unit of floor space throughout its eight stories (where additional height is necessary two stories take the place of three). No material departure has been made from the architects' original scheme, except that considerable additional floor space has been obtained on the lower floors. The whole building has been arranged in large apartments easily sub-divided into smaller for class-rooms, etc., with one or more windows to each; full advantage has been taken of the Summer Street site by placing the boiler-house and two-story workshops close up to the railway boundary. The vaults under footpaths in Navigation Street and Suffolk Street, and under the railway will be utilised for heavy and noisy trades and for general stores. The allotment of the floor spaces in the extended building will be varied from time to time, according to the special class and laboratory requirements, the present floor levels and heights of ceilings have been adopted, and the construction is such that either concrete partitions or glazed screens may be placed in any position on any floor irrespective of beams or posts; the first section of the building is a steel frame building

with external buttressed brick and terracotta walls with ferro-concrete floors and staircases, the floors being on the "Monier" principle, and only 3 ins. in thickness, carrying a span of average 8 ft. from beam to beam. It is intended in the new structure to use ferro-concrete construction throughout, continuing the other walls as before. The building is divided vertically into two parts by floor four, that being the administrative floor, the electrical and mechanical engineering laboratories occupying the lower floor of the east and west blocks, with the mechanical engineering teaching plant and the electrical generating plant in a two-story block filling up the central area. Space is also given for an enlarged metallurgical department. The day school is proposed to occupy the fifth, sixth, and seventh floors on the Suffolk Street site. The commercial classes will occupy the central block facing Navigation street on floors four, five, and six, the women's department being on floor seven. The general drawing offices, physics department, and theory classes will be on floors four, five, and six of the east block, and building construction on floor nine. The two-story roofing is to be also constructed in ferro-concrete, giving full use of the enclosed space, the east side being for class-rooms or workshops, and the west side for a large hall which may be used as a gymnasium or for recreation and examination purposes. Refreshment rooms will be fitted up in the roof spaces of the present building on the west side. The provision of a large hall on the Navigation Street level, together with wide corridors and staircases, gives ample opportunity for displaying examples of technical school work and manufacturers' models and diagrams. An installation of three electrical passenger lifts will be supplied to give access to the various floors and goods and machinery hoists, and the heating and ventilating will be by means of steam calorifiers placed on each floor with hot-water pipes and radiators, the flow being accelerated by "Turbos" electrically driven, and extracting fans for foul air placed on the roof flats; the inlet of fresh air will be through the radiators. All windows will be constructed to open outwards as casements for summer ventilation. Electric power will be obtained from the city supply, and reduced in voltage as required in a power-room adjoining Navigation Street. We shall give plans and sections, etc., in an early issue, for this building will be one of the most extensive and up-to-date institutions of its class in England when it is completed.

### ALMSHOUSES, BURLINGTON LANE, CHISWICK, FOR THE CHISWICK CHARITIES TRUSTEES.

The site set apart for these almshouses is a free and open parcel of land close to the grounds of Chiswick House, and situated in Burlington Lane. The setting-out of the contiguous public thoroughfares determined its odd, triangular shape, tapering on irregular lines towards the apex, thus rendering a symmetrical treatment scarcely perspicuous. This difficulty has been met by the semi-circular forecourt or grass plot adopted by the architect to mask the obviously one-sided shape of the frontages. The intermediate spaces right and left are to be laid out with flowering trees and shrubs, allowing room for spring bulbs and hardy perennials flanking the serpentine paths leading to a circular rendezvous, where the old people can rest and enjoy the air. The eleven almshouses, as set out by the accompanying sheet of drawings, will occupy the whole width of the upper side of the site. East and west, towards the public roads, the building line had to be set back to the prescribed limit settled by the district council. The disposition of the almshouse frontages was primarily fixed by the necessity of a southern aspect for all the tenements. A capital view is ensured from their windows by the vista going towards the south-west down Alexander Avenue, as this road directly faces the main elevation. The group of forest trees backing up the skyline of the long, low range of almshouses on the northern part of the land will shelter the inmates from prevailing cold winds in the winter. These trees prevent allotments, so the back part of the property,

consequently, cannot be utilised for any garden purpose, but it will serve as an airing ground and supply a cool retreat in summer-time. The maintenance of the front garden will be practically reduced to a minimum by the lay-out shown on the block plan. For the most part this work will be confined to mowing the grass and tending the herbaceous beds immediately in front of the cottages. The cost of such upkeep must be restricted, or the work probably in course of time will be neglected. A shelter for the hose, mower, and garden tools is provided at the back, not in an outhouse, but as part of the main structure. An occasional gardener will have this store under his personal control. The w.c.'s are kept together in pairs to simplify the drainage, and they are well isolated as far as possible from the larders, which face north. The site has been generously allocated by the Duke of Devonshire for these almshouses. For many years the Chiswick Parochial Charities Trustees have been accumulating their small surplus income with the object of erecting these additional almshouses for the Chiswick poor. It is intended to proceed with the major portion of the project so soon as can be arranged. The small central hall forming the frontispiece, set diagonally next the Burlington Lane entrance, is planned for occasional entertainments and other purposes associated with the well-being of the almshouse. It has a service room behind fitted with a cooking stove. The window is put high up over the covered way at the back. Each house has a verandah in a sunny position, and an entrance screened lobby. A matron almshouse person is provided for by the end house, to the right of the row. The architectural effect depends upon the unassuming colour and scale of the materials, also on the grouping of chimneys and hipped roofs covered with sand-faced tiles. The work is extremely simple, and all ornament is avoided, being entirely out of place. The architect is Mr. Maurice B. Adams, F.R.I.B.A., of Bedford Park, one of the oldest members of the Chiswick Parochial Charities Commissioners.

### FARROWS, LTD., BRANCH BANKS ERECTED IN SMALLER PROVINCIAL TOWNS.

The lower part of the elevations is of polished grey Norwegian granite, with pilasters of similar material having Portland stone caps and bases. The end pilasters are surmounted with stone scroll brackets bearing the bank's monogram, "F.B.Ltd." The general scheme of the woodwork, which is of polished walnut, has been designed to represent the outline of a hive, a feature which is further emphasised by the carved and gilded bees at intervals on the framing and the carved and gilded representation of a comb and bee on the keystone. The entrance doors, when open, fold back into recesses on either side of lobby, thus making with the soffit a completely panelled entrance. The whole of the counter and desks, of special design, are of polished walnut, embodying the comb and bee again in the panelling of the counter fronts, while the brass counter grill is broken at intervals for the insertion of a decorative panel with script monogram, "F.B.Ltd.," in brass. One scheme of decoration is used throughout, the branches as far as possible, which, with the uniform exteriors, makes the banks easily recognised by the public. This design has been carried out in a number of provincial and suburban towns, with slight variation due to site—among others, Southampton, Hove, Worthing, Lewis, Halifax, Kingston, Lewisham, and Whitechapel. Messrs. Farrow and Turner, of Norfolk Street, Strand, are the architects.

### CORINTHIAN CAPITAL FROM THE TEMPLE OF JUPITER STATOR IN THE FORUM, ROME.

The most remarkable temple of the Augustan age was that of Jupiter Stator, with its beautiful details producing an order which for richness combined with proportion and architectural fitness has hardly been surpassed. The capital—bordering, perhaps, on over-ornamentation—is so well arranged as to appear just suited for the work it has to do. The acanthus leaves approach

the very verge of that degree of direct imitation of nature which, though allowable in architectural ornaments, is seldom advisable. The formality of the composition removes the design from the naturalistic and gives a conventional effect which is as graceful as it is refined. The entablature is not so fine as the column. The temple was octastyle in front. The height of the pillars was 43 ft., and that of the entablature 12 ft. 6 ins. Only three columns now exist, and they are in the Campo Vecchio, Rome. The accompanying drawing of this capital has been lent us by Mr. Reginald J. Slater, of East Ham.

#### OBITUARY.

We regret to announce the death of Mr. Herbert Percy Horne, the well-known architect, connoisseur, and author, of Florence. Mr. Horne, who was 52 years of age, died at his residence, 8, Lungarno Archibuesieri, in that city, on the 14th inst. Among his works as an architect were the Church of the Redeemer, in Bayswater Road; new buildings in Brewhouse Court, Eton College; additions to St. Luke's, Camberwell, and many private houses. He was more widely known as a contributor to the English quarterlies and to various French and Italian journals, and as a translator of the writings of Vasari and Cordivi. His volume on Botticelli, published eight years ago, was regarded as a leading authority on that artist's career and work. For four or five years Mr. Horne edited the *Hobby Horse*.

Mr. Walter Cook, M.A., a well-known architect of New York, died at his residence in New York City on March 25 in his seventieth year. Mr. Cook was born in New York City, graduated from Harvard in 1869, and studied at the Royal Polytechnic School in Munich and at the Ecole des Beaux-Arts in Paris. He began practice in New York in 1877. Mr. Cook was president of the American Institute of Architects, 1912-1913, was an ex-president of the New York Chapter, and also served as president of the Society of Beaux-Arts Architects. As a member of the Municipal Art Commission of the City of New York he gave valuable assistance to the work of that body. He also served as consulting architect to the Board of Estimate and Apportionment, and at the time of his death was consulting architect to the Court House Board of New York City. His services to the profession were recognised by his election as an officer of the U.S. National Institute of Arts and Letters, as an Associate of the National Academy, and the bestowal by the French Government of the rank of Chevalier of the Legion of Honour.

The death took place on Sunday in last week of Mr. George Wormal, architect, at his residence, Rowley Park, Stafford. Mr. Wormal, who was a native of Lincoln, took up his residence at Stafford in 1872, and carried on his profession there until two or three weeks ago, when he was laid aside by illness. Many public and private buildings in the town and district were designed by him. He entered the town council in December, 1883, was Mayor of the borough in 1893-4, and an alderman from 1895 to 1901, when he retired. For seven years he was a member of the Stafford Board of Guardians, and he was also identified with Staffordshire Freemasonry, holding many important offices in connection with it.

Mr. W. Dean and Mr. T. H. Boden, surveyors to the Tarvin Rural District Council, have received an increase of salary of £15 a year each for the continuance of the war in respect of their duties as sanitary inspectors.

For the first time for three centuries the rateable value of the Isle of Wight this year shows a decrease owing to depreciation of seaside property. For the last ten years the increase has represented an addition of £500 per annum to the rates collected.

At the last meeting of the Aberdeen Harbour Board permission was given to Messrs. John Lewis and Sons, Limited, engineers, for the extension of their shipbuilding yard at South Esplanade East. In connection with the scheme an alteration of South Esplanade East will be necessary at an estimated cost of £690, which will be defrayed by Messrs. Lewis.

## Building Intelligence.

**AVONMOUTH.** The new premises which have been added to the Avonmouth Soldiers' Club and Institute were opened last Wednesday by the Lord Mayor of Bristol. They consist of a large hall for general purposes and a sanitary wing, comprising two bathrooms and extensive lavatory accommodation. The principal room measures 40 ft. by 25 ft., and will seat 200 people. It has a lofty, open, boarded roof, and is well lighted by windows at one side and end, with a dormer in the roof. The construction is as simple as possible, the roof timbers being left as they came from the bench and the unplastered walls coloured a quiet, neutral green. The architects were Messrs. La Trobe and Weston, and the contractor Mr. Longden.

#### LEGAL INTELLIGENCE.

**HOT WATER ENGINEER V. BUILDERS.**—NEW TRIAL ORDERED.—**ELLIOTT V. C. P. ROBERTS AND CO., LTD.**—In this action of appeal judgment was delivered in the Court of Appeal on Wednesday by Lord Justices Swinfen Eady, Pickford, and Bankes, ordering a second trial. The plaintiff appealed from the judgment of Mr. Justice Lush, who entered judgment for the defendants on points of law, notwithstanding the findings of the jury. The plaintiff, who was a hot-water engineer, sued the defendants, a firm of builders, to recover damages for personal injuries received by him owing to the alleged negligence of the defendants. On December 21, 1914, the defendants were engaged in rebuilding a school at Bonner Road, Bethnal Green, under a contract with the London County Council, and the plaintiff was employed by the county council to do certain work. Whilst walking across a gangway formed by two planks—laid originally side by side and not fixed at either end—the plaintiff fell and received serious injuries, resulting in paralysis. The plaintiff said the defendants were guilty of negligence in not providing a safe and suitable gangway. The jury awarded the plaintiff £2,000 damages, but Mr. Justice Lush refused to enter judgment for him, as, in his opinion, there had been no breach of duty on the part of the defendants, for whom he entered judgment, with costs. The plaintiff appealed, and asked that judgment in accordance with the verdict should be entered for him. Mr. Moyes and Mr. Aubrey Davies now appeared for the plaintiff, and Mr. McCall, K.C., and Mr. Craig Henderson for the defendants. In giving judgment, Lord Justice Swinfen Eady said the Court were of opinion that the plaintiff, in using the gangway, was in the position of an invitee so far as the defendants were concerned, and that, as the matters relied upon by him as negligence—namely, that the planks were not fixed and the gangway had no handrail—were facts which were obvious to anyone, the defendants had committed no breach of duty to the plaintiff. They were also of opinion, however, that the gangway, from the nature of its construction, required inspection and adjustment from time to time, and that there was evidence on which the jury might have come to the conclusion that the plaintiff's accident was due to the failure of the defendants to examine and adjust the boards. The plaintiff could not retain the verdict found by the jury, but it was impossible for the Court to uphold the judgment entered against him and to say that there was no evidence on which he might have recovered. The result was that both the verdict of the jury and the judgment entered must be set aside, and there must be a new trial. As this had been ordered upon other grounds, an opportunity would be given for a fresh assessment of the damages.

#### PARLIAMENTARY NOTES.

**LOCAL GOVERNMENT (EMERGENCY PROVISIONS) BILL.**—The House of Lords, at the sitting on Tuesday evening in last week, went into Committee on this Bill, and a number of Government amendments were agreed to. The Earl of Northbrook moved an amendment, which was adopted, to insert a clause under Clause 19, the object being to enable local authorities to effect economy during the war in the maintenance and repair of roads, or to prevent for the time being an additional amount of traffic being put on the roads with a consequent increase of expenditure. The Bill passed through Committee as amended and was reported to the House, where it was read a third time and passed.

#### COMPETITIONS.

**CIVIC ARTS ASSOCIATION.**—The Civic Arts Association is devoting considerable attention to the subject of war memorials, and is arranging a series of competitions and exhibitions, to bring before the public a variety of suggestions. The first exhibition, to be held in the Common Room of the Royal Institute of British Architects, 9, Conduit Street, in July, 1916, will be devoted to the designs and models submitted in the competitions. Large sums of money are being, and will be, expended on memorials, both monumental and of a kind suitable for the homes of the people, and the Civic Arts Association hopes by this means to bring those who are contemplating erecting memorials into touch with artists and craftsmen. Prizes amounting to £205 are offered for certain types of memorials; also £25 has been placed at the disposal of the jury for award to designs, other than those gaining first and second prizes, which show special merit in any class.

#### CLASSES FOR THE COMPETITIONS.

	1st Prize.	2nd Prize.	3rd Prize.
1. Monument for the new County Hall, London .. .. .	50	15	
2. Wall Tablet in Cast or Chased Bronze .. .. .	20	5	
3. Wall Tablet in Carved Wood .. .. .	20	5	
4. Wall Tablet in Stone or Marble .. .. .	20	5	
5. A simple Wall Tablet in Wood .. .. .	10	5	
6. Mural Painting for a Boys' Club .. .. .	10	5	
7. A Fountain .. .. .	20	5	
8. Inexpensive Memorials for "The Home" .. .. .	5	3	2

The conditions governing the competitions and other necessary details will be sent to intending competitors who forward to the Secretary of the Association at 28, Prince's Gardens, S.W., a postal order for 1s. and a stamped and addressed foolscap envelope. The postal order will be returned on receipt of a bona-fide design.

#### TRADE NOTES.

Boyle's latest patent "Air-Pump" ventilators have been applied to St. Matthew's School, Preston.

The new Savings Bank, Leicester, is being supplied with Shorland's warm air ventilating patent Manchester grates by Messrs. E. H. Shorland and Brother, Ltd., of Failsforth, Manchester.

A temporary hippodrome is about to be built at the rear of Linden Crescent, Folkestone. Mr. F. J. Fox is the architect and Messrs. W. Silk and Son are the builders.

The death is announced, in his eighty-seventh year, of Mr. George Spencer, formerly in practice as an architect, who had for five-and-thirty years lived in retirement at Taunton.

Plans for a water supply for Burwick and Stopford have been prepared for the rural district council of Yeovil by their sanitary engineer, Mr. N. G. Fish. The estimated cost of the scheme is £1,500.

The Metal and Munitions Co., Birmingham, are to considerably extend their factory buildings, and Mr. Herbert T. Buckland, F.R.I.B.A., of Congreve Street, Birmingham, their architect, has prepared plans.

Mr. T. H. Hailstone, surveyor and sanitary inspector to the Birstall urban district, has tendered his resignation, having been appointed to a similar position under the Alford Urban District Council.

The partnership hitherto subsisting between R. D. Coulthard and H. Oldfield, architects and surveyors, at Park Lane, Workington, Cumberland, under the style of W. G. Scott and Co., has been determined by effluxion of time.

"If landlords will evade the stamp tax they must bear the penalty," remarked the Clerkenwell County Court Judge in holding that the claim of a property owner could not succeed because an agreement with its tenant was unstampable.

The new infirmary for Ayr, orth, built at an outlay of over £40,000, was formally opened on Saturday. The institution has been entirely reconstructed on the old site in Viewfield and Rosemont Roads, and now provides beds for forty patients, an administrative block, home for ten nurses, and servants' home. Mr. Hugh Gavin, of Arbroath, is the architect, and his plan and perspective were illustrated in our issue of June 20, 1913.

### PROFESSIONAL AND TRADE SOCIETIES.

**NOTTINGHAM AND DERBY ARCHITECTURAL SOCIETY.**—The fifty-third annual meeting was held on Tuesday, April 18. The chair was taken by the president, Mr. Harry Gill, M.S.A. The council reported that one member and one associate-member had been elected, and that Mr. Valentin Yearwyck, a Belgian architect of note, at present residing in Nottingham, the privilege of honorary membership has been granted until peace is declared. The death of one member, the resignation of two honorary members, four members, and the exclusion of one associate had left a total membership of 116, a decrease of 8. A suitable greeting in the name of the society had been sent at Christmastime to the twenty-six members serving their King and country. Although the profession had suffered more than any other in consequence of the war, no case of absolute distress had been brought before the Emergency Committee of the society. The hon. secretary had assisted the R.L.B.A. War Committee, but for some reason the results had not been commensurate with the time and trouble involved. The Royal Institute now urge all architects suffering from the effects of the war to take up munitions work, and several members have already qualified. The members over military age were asked by the Local Parliamentary Recruiting Committee to canvass under Lord Derby's scheme, and several members gladly gave their services. No summer excursion was held, but four visits to works proved interesting and instructive. Four seasonal meetings were held, at which useful papers were read and discussed. Notwithstanding the decreased membership, the funds of the society showed a satisfactory balance, and it was unanimously decided to send a donation of three guineas to the Architects' Benevolent Fund and invest £15 in the War Loan. Mr. Spencer, the hon. librarian, reported that several members had generously contributed books to the library, and Mr. Hendy, who was now on active service, had lent the whole of his books until the war was over. A motion "that the rules as to election of officers be suspended and the present officers continue until April, 1917," was unanimously agreed to. The president, Mr. Gill, thanked the members on behalf of himself, the vice-president, Mr. H. G. Watkins, and the members and officials of the council for the renewal of their confidence, and hoped that before their extended term of office was completed brighter times would have dawned for them all.

**THE DEVELOPMENT OF LONDON.**—At the meeting of the London Society held in the hall of the Royal Society of Arts early in last week, Mr. W. R. Davidge, A.R.I.B.A., delivered a lantern lecture on "The Development of London," illustrated by numerous old prints, maps, and plans. The lecturer traced the gradual evolution of the London of to-day. The improvements had taken place in piecemeal fashion, but there had been men more far-sighted than their contemporaries who had made valuable suggestions for the development of the city on a definite plan. John Gwynn, the Shrewsbury architect, in his "Essay on Design and London and Westminster Improved," published early in the second half of the eighteenth century, anticipated most of the alterations which had since been made in London, notably Trafalgar Square, the Embankment, Kingsway, and Moorgate Street. Gwynn did not live to see any one of his ideas adopted, but no doubt he did much to influence opinion on the subject of London improvements. Gwynn recommended an embankment on the south side of the Thames as well as on the north side, and Mr. Davidge trusted that some day this also would be realised.

Mr. Harold H. Parkhouse, of Bideford, has been appointed assistant borough surveyor of Hemel Hempstead.

Eight new schools will be completed and opened by the Education Committee of the London County Council during the current year.

### Our Office Table.

An inquiry was recently undertaken on behalf of the Ministry of Munitions to find out how far labour at present engaged on public and private buildings could be diverted to immediate national purposes. The result has been that many men employed on large public contracts have been withdrawn; but a strong feeling of irritation has since arisen among builders' operatives because of the difficulties placed in their way to obtain work in the localities where they are said to be most urgently required. Representations have been made to the Ministry of Munitions on behalf of the Building Trades Federation, and it is hoped that work which has been practically suspended on a number of private buildings will be resumed at an early date.

Professor W. R. Colton, A.R.A., chairman of the Imperial Arts League, has written to the Chancellor of the Exchequer on behalf of a large number of associated art societies calling his attention to the unfortunate position of exhibitors of pictures and other works of art by living artists under the provisions of the Budget. A tax placed on the entrance money of those visiting high-class art exhibitions will, Professor Colton points out, press hardly upon a profession already suffering cruelly as the result of the present war. Apart from their educational value, exhibitions are essential to artists for the sale of their work, and differ fundamentally from entertainments. Whilst theatres, music-halls, and cinema performances may be said to be earning larger profits from the present prosperity of the working-classes, the exhibitions of the societies represented are merely channels for the sale of art productions; are unable to show any profit in normal times without the annual subscription of their members; and are probably now keeping open at a loss. Any additional handicap at the present moment, however small, will have serious consequences to members of the community whom the nation must desire to keep alive. A public meeting of art societies and an influential deputation to Mr. McKenna in support of this memorial are being arranged provisionally.

We are glad to hear that the famous collection of pictures by Dante Gabriel Rossetti which the late Mr. George Rae, of Liverpool, acquired himself from the artist, have been purchased for the nation by a generous arrangement with Mr. Edward Rae. The Rae collection of Rossettis is, perhaps, the best in existence, its only rival being the Boreford-Heaton collection. The collection will probably be hung together at the Tate Gallery, where it will remain a proof of the fine connoisseurship of Mr. Rae, who had the insight to buy Rossetti's works at his best period. His early works are only now coming into their own in the popular estimation, as his later and voluptuous period has steadily declined. These pictures were painted between 1857 and 1866, the period of the drawings in the Moxon "Tennyson." The two finest are "The Tune of Seven Towers," a water-colour of 1857, and the little water-colour triptych, "Paulo and Francesca," of the same year. The other water-colours of the Rae collection are "The Wedding of St. George," "The Damsel of Smet Gravel," "The Blue Closet," "The Chapel before the Lists"—which has a high coloured landscape background painted under the Marlow Brown influence—"The Heart of the Night," and "Lucresia Borgia." The oil colours are "Monna Yanna," "The Beloved," and "Fazio's Mistress." The Rae collection will add greatly to the value and usefulness of the Tate Gallery. Three works by Ford Madox Brown from the Rae collection have also been acquired for the Tate Gallery. One is a small water-colour version of "The Last of England," now in the Birmingham Corporation Art Gallery, showing the woman in a white shawl; "Lear and Cordelia," painted in 1849 and retouched in 1854; and a large landscape painted from Hampstead in 1861, entitled, "English Autumn Afternoon."

The private view of the Spring Exhibition of the Royal Birmingham Society of Artists took place on Thursday last. The society has taken the earliest opportunity of honouring its lately deceased senior member, John Parker, R.W.S., who, though not resident in Birmingham, was born and received his early art education there, and was a most constant exhibitor in the galleries. Over one hundred of his pictures and sketches in oil and water-colour are shown, and they cover the whole range of his art. Amongst the exhibitors of portraiture are W. J. Wainwright, R.W.S., and E. S. Harper. Works by J. E. Southall and Henry Payne, Charles M. Gere, and A. J. Gaskin form a distinctive group; Walter J. Morgan shows several figure pictures; and landscapes are sent by John Keeley, Steel Harper, John R. Harvey, and Elsie Haynes.

At a General Assembly of Academicians and Associates held last Thursday, the following were elected associates of the Royal Academy:—David Young Cameron, A.E., painter; Maurice Greiffenhagen, painter; and Bertram Priestman, painter. Mr. Cameron, who was elected an Associate Engraver of the Academy in 1911, was born in Glasgow in 1865, and is a well-known member of "the Glasgow school." Mr. Greiffenhagen has been headmaster of the life department of the Glasgow School of Arts for the last ten years, and has done a large amount of illustration. Mr. Priestman, who is a member of the Royal Institute of Oil Painters and of the New English Art Club, has specialised in landscape work. He is represented in many national and municipal collections in this country and abroad, and has exhibited in America and at many of the leading European exhibitions.

Mr. A. O. Curle, W.S., Director of the National Museum of Antiquities, Edinburgh, has been appointed by the Committee of the Privy Council on Education in Scotland to be Director of the Royal Scottish Museum, in succession to Sir T. Carlaw Martin, whose retirement takes place under the age limit. Mr. Curle for the period of the war will be responsible for the administration of the National Museum of Antiquities, which is at present undergoing extensive structural alterations and is closed to the public. Mr. Curle, who was born in 1866, is a Fellow of the Society of Antiquaries, of which he is one of the two local secretaries for Scotland, and of the Society of Antiquaries of Scotland; he is also a Fellow, and was honorary secretary of that body from 1905 to 1913. In 1903 he was appointed secretary of the Royal Commission on Ancient Monuments of Scotland, and continued in that office until 1913, when he became a member of that Commission. He is also a member of the Advisory Board for Scotland under the Ancient Monuments Act, 1913. Mr. Curle is the author of numerous contributions to archaeological publications.

The City Council of Coventry discussed at some length at the last meeting the salaries of their officials. While the sanitary committee recommended an advance in the salary of Mr. Clarke, chief inspector of nuisances, from £275 to £300 per annum, the General Works Committee presented a minute that increases in the city engineer's department were inopportune at the present time. It was pointed out that the Local Government Board had recommended that salaries should not be advanced during the war, except for some reason of great importance. It was stated on the other hand that Mr. Clarke had twenty-five years' service with the corporation, and had received no increase for three years. Ultimately the recommendation was passed. With reference to the city engineer's department, Mr. Wale moved that the minute go back, and said there were men in the office who received only 30s. and 35s. a week. Mr. Nichols said the advance applied for in the department would reach a capitalised sum of £7,500. The amendment referring the minute back was carried.

The Bootle Education Committee, at the monthly meeting last Thursday, confirmed the recommendations of the Joint Higher and Elementary Education Sub-committees,



involving the closing of the School of Art, the disposition of the art master and his staff, and the utilising of the School of Art premises for the purposes of school medical service. Dr. Turner, in moving the adoption of the committee's proceedings, said that at the present time there were attending 38 scholars belonging to Bootle and 49 outsiders, giving 45 per cent. for Bootle and 56 per cent. others. When the school was started there were 143 pupils, the highest number was 280, and at the present the number was down to 87. As to its cost, it was £920 per annum. Regarding income, £75 was from the pupils, £27 County Council grants, Board of Education grants £260, leaving a balance on the wrong side of £580. Dealing with its success, they had, during the course of ten years, spent about £10,000 or £12,000. They should have expected a few successes in the course of that time, but there were only twenty-one pupils who had qualified to be art teachers under the regulations of the Board of Education. In order to erect machinery for teaching these twenty-one he calculated they had spent about £500 on each. Within a very short distance they had the finely equipped art school at Liverpool, which was within easy reach of all.

The Canadian lumber trade is prospering. Prices have advanced about a dollar a thousand superficial feet, and are expected to continue high. This advance is due to the fact that stocks on the prairie are low, and buyers for prairie lumber yards have been visiting the mills of British Columbia to carry out orders received from prosperous farmers. War orders for various articles in which wood is used, the shortage of stocks on the coast, and the expectation that the large crops will call for big supplies of lumber are also factors which help to maintain increased prices. An interesting feature of the lumber trade is the construction of several saw mills in the interior along the Grand Trunk Pacific and the Canadian Northern Railways. The construction of these lines opens up valuable timber territory.

The rural district council of Guosall have agreed to increase the salary of Mr. H. V. Heath, their surveyor and sanitary inspector.

The construction of the new High Court at Allahabad is making excellent progress, and the building will be ready for occupation by October.

Plans have been prepared by Mr. T. Hethorn Cunliffe, Lieut. R.I.B.A., of Birch Street, Acerington, for a new church at Spread Eagle, Oswaldtwistle.

The death is announced of Mr. William Welburn, borough surveyor of Middleton, Lancashire. He had occupied the position over twenty years.

The urban district council of Westhoughton have agreed to carry out a scheme for the erection of ninety-five workmen's dwellings on the Alcock Fold site. Mr. G. Hayes is the surveyor.

On the recommendation of the Wallaseid Housing and Town Planning Committee, the town clerk and borough surveyor have been instructed to consider the question of promoting a town planning scheme for the eastern portion of the borough.

The Oxford Tribunal have refused the appeal for exemption made by Mr. W. A. Daft, acting county surveyor of Oxfordshire. The appeal was supported by the county council and by the county surveyor, Major Stalard, now on military service.

The Dundee Harbour Board have approved an agreement with the Caledon Shipbuilding and Engineering Company, Ltd., for a large extension of their shipyard to enable them to construct ships up to 600 ft. for which orders had been placed. The works will include a river jetty 240 ft. in length, on which will be erected a crane capable of lifting 130 tons.

Extensive alterations and extensions are about to be carried out at the hospital at Morton Banks, Keighley, for the purpose of converting it into a military base hospital, and an appeal is being made for £10,000 for the completion of the scheme. The architects are Messrs. Moore and Crabtree, of Keighley and Bradford, by whom the original buildings were planned and carried out.

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Elingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

\*Drawings of selected competition designs important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc.—we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

Telephone: Gerrard 1291.

Telegrams: "Timeserver, Estrand, London."

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## NOTICE.

Bound copies of Vol. CIX. are now ready, and should be ordered early (price 12s. each, by post 12s. 10d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLVI., XLIX., LIII., LXI., LXII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXVIII., LXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., XCVII., XCVIII., XCIX., C., CI., CII., CIII., CIV., CV., CVI., CVII., and CVIII. may still be obtained at the same price; all the other bound volumes are out of print.

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## BACK ISSUES.

Most of the back issues are to be had singly. All back issues over one month old will be charged 6d. each, postage 1d. Subscribers requiring back numbers should order at once, as they soon run out of print.

Handsome Cloth Cases for binding the BUILDING NEWS, price 2s., post free 2s. 5d., can be obtained from any Newsagent, or from the Publisher, Elingham House, 1, Arundel Street, Strand, W.C.

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Replies to advertisements can be received at the office, Elingham House, 1, Arundel Street, Strand, W.C., free of charge. If to be forwarded under cover to advertiser, an extra charge of sixpence is made. (See Notice at head of "Situations.")

Advertisements for the current week must reach the office not later than 3 p.m. on Tuesday. Front-page advertisements and alterations or stop orders for serial advertisements must reach the office by first post on Monday to secure attention.

RECEIVED: P. C. B. and Co., M. and Co., Ltd., D. F. C., W. C. H. D. Bros., Ltd., H. J. A. H. and Son, A. D. D. and Co., L. P. A. and Son, C. M. Co., Ltd., L. M. Co., Ltd., W. H. S. and Son, W. and Co., Ltd., A., Ltd.

WORK: Yes.

D. F. A. Please send.

R. F. W. Thanks; cannot use.

A.R.I.B.A.—It really seems hardly worth while. URGENT. PLEASE NOTE. To prevent disappointment, owing to restricted and later postal deliveries, it is not safe to wait till Tuesday morning to send us advertisements for the current week's issue. Many reach us after 3 p.m., at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order THE BUILDING NEWS regularly of their newsagent or book-stall. With the present shortage of paper and probable still further rise in its price, it is futile to expect a newsagent to saddle himself or us with surplus unsold copies to oblige chance customers, on which, moreover, he or we have to pay heavy and increasing carriage charges.

## TO ARMS!

THE BATTALION CENTRAL LONDON REGIMENT AGENTS.

OFFICER OF THE WEEK. Platoon-Commander A. Gerard.

NEXT FOR DUTY. Platoon-Commander W. J. A. Watkins.

APPOINTMENTS.—Mr. John Oscar Chandle to be Platoon-Commander; Private Belcher to be Battalion Signalling Sergeant.

SCHOOL OF ARMS. Tuesday, 6 to 7 p.m.

INSTRUCTION PARADE. Thursday, April 27, 5.45 p.m.

SHOOTING. See notice and Tables A and B at Headquarters.

DRILLS AND PARADES. For details of all drill and parades see notice board at Headquarters.

By Order.

MAURICE V. ARSELEY, Adjutant.

April 22, 1916.

## MEETINGS FOR THE ENSUING WEEK.

THURSDAY (To-morrow). Roads Improvements Association. Annual Meeting, 15, Dartmouth Street, Westminster, 4.30 p.m.

Royal Society of Arts. "Scientific Agriculture in India," by Mr. James MacKenzie, Deputy Commissioner, Mysore, and Agricultural Adviser to the Government of India, 4.30 p.m.

Architectural Association of Ireland. President's Address, 15, South Frederick Lane, Dublin, 8 p.m.

Monday (May 1). Royal Institute of British Architects. Eighty-second Annual Meeting, 4 p.m.

Arts and Crafts Association. Nomination of House List for Session 1916-17, 37, Great Smith Street, Westminster, 4.30 p.m.

Royal Society of Arts. "Vibrations, Waves and Resonance," Lecture No. 1, by J. E. Murray, D.Sc., 4.30 p.m.

Wednesday (May 3). Royal Society of Arts. "Rationalised Feet," by Prof. W. B. Bostrom, M.A., 4.30 p.m.

Thursday and Friday (May 4 and 5). Iron and Steel Institute. Annual Meeting, Institute of Civil Engineers, Great George Street, Westminster. Thursday, 10.30 a.m.; Friday, 10 a.m.

The Kelso Breich Council have appointed Mr. Thomas Baek as interim borough surveyor and sanitary inspector.

The corporation of Bournemouth has received sanction to borrow £1,000 for cliff protection works and £1,250 for three groynes.

The Housing Committee of the D.C.C. corporation have instructed the engineer to prepare a survey embracing an area of 114 acres covered with slum properties, and they recommend the council to declare this an unhygienic area and to make an improvement scheme, providing for the erection of 24 houses at an estimated cost of £2,447.

Mr. R. J. Thomas, surveyor to the Bucks County Council, has submitted a plan, under a statutory requirement, of main roads adjacent to the Baben Camp, at a cost of £22,500, including a provision of 2 per cent. for establishment charges, the amount of £2,500 contributed by the county council, being secured by the Road Board and the War Office.

## LATEST PRICES.

N.B.—All prices must be regarded as merely approximate for the present, as our usual sources of information are in many cases failing us.

### TIMBER.

Owing to stoppage of supplies all prices have advanced considerably.

IRON.		Per ton.	Per ton.
Rolled Steel Joists, English.	£20 0 0 to £21 0 0		
Compound Girders, Ordinary Sections.	22 0 0	23 0 0	
Compound Stanchions.	23 0 0	24 10 0	
Wrought-Iron Girder Plates.	13 10 0	13 12 6	
Steel Girder Plates.	13 15 0	13 17 6	
Steel Sheets (Single or Double).	11 10 0	—	
Steel Strip.	10 15 0	—	
Basic Bars.	11 15 0	—	
Mild Steel Bars.	18 0 0	18 10 0	
Steel Bars, Ferro-Concrete Quality (basis price).	18 0 0	—	
Bar Iron, good Staffs.	15 10 0	15 15 0	
Do., Lowmoor, Flat, Round, or Square.	24 0 0	—	
Do., Staffordshire Crown.	16 0 0	16 10 0	
Boiler Plates, Iron—			
South Staffs.	8 0 0	8 15 0	
Best Scotch.	9 0 0	9 10 0	
Angle, 10s., Tee, 20s. per ton extra.			
Builders' Hoop Iron, for bonding, £13 5s. to £13 15s.			
Ditto galvanised, £20 to £20 10s. per ton.			
Galvanised Corrugated Sheet Iron—			
No. 18 to 20.	No. 22 to 24.		
6ft. to 8ft. long, inclusive gauge.	£29 0 0	£29 10 0	
Best ditto.	32 0 0	32 10 0	
Cast-Iron Columns.	£13 10 0 to £14 0 0		
Cast-Iron Stanchions.	13 10 0	14 0 0	
Rolled-Iron Fencing Wire.	8 15 0	9 5 0	
Rolled-Steel Fencing Wire.	7 15 0	8 0 0	
Galvanised.	6 5 0	6 15 0	
Cast-Iron Sash Weights.	7 0 0	7 10 0	
Cut Floor Brads.	15 0 0	15 5 0	
Corrugated Iron, 24 gauge.	16 0 0	—	
Galvanised Wire Strand, 7 ply, 14 B.W.O.	14 5 0	—	
B.B. Drawn Telegraph Wire, Galvanised—			
0 to 8.	10	12	B.W.O.
£10 10s. £10 15s. £11 0s. £11 5s. £11 15s. per ton.			
Cast-Iron Socket Pipes—			
3 in. diameter.	£7 5 0 to £7 12 6		
4 in. to 6 in.	7 0 0	7 2 6	
7 in. to 24 in. (all sizes)	7 7 6	7 12 6	
[Coated with composition, 5s. 0d. per ton extra.			
Turned and bored joints, 5s. per ton extra.]			
Ton—	Per ton.		
Cold Blast, Lillieshall.	107s. 6d. to 142s. 6d.		
Hot Blast, ditto.	130s. 0d. to 107s. 0d.		
Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 24 per cent.)—			
Gas-Tubes.	58½ p.c.		
Water-Tubes.	55		
Steam-Tubes.	51½		
Galvanised Gas-Tubes.	47½		
Galvanised Water-Tubes.	45		
Galvanised Steam-Tubes.	37½		

### OTHER METALS.

	Per ton.	Per ton.
Lead Water Pipe, Town.	£42 0 0 to	—
" " Country.	43 0 0	—
Lead Barrel Pipe, Town.	43 0 0	—
" " Country.	44 0 0	—
Lead Pipe, tinned inside, Town.	44 0 0	—
" " Country.	45 0 0	—
Lead Pipe, tinned inside and outside.	46 10 0	—
" " Country.	47 0 0	—
Composition Gas-Pipe, Town.	45 0 0	—
" " Country.	46 0 0	—
Lead Soil-pipe (up to 4 in.) Town.	45 0 0	—
" " Country.	46 0 0	—
(Over 4 in. £1 per ton extra.)		
Lead, Common Brands.	25 10 0	26 0 0
Lead, 4lb. sheet, English.	35 15 0	36 5 0
Lead Shot, in 28lb. bags.	24 15 0	—
Copper Sheets, Sheathing & Rods.	148 0 0	150 0 0
Copper, British Cake and Ingot.	132 0 0	134 0 0
Tin, English Ingots.	199 5 0	201 5 0
Do., Bars.	206 0 0	207 0 0
Pig Lead, in lwt. Pigs, Town.	33 12 6	34 12 0
Sheet Lead, Town.	41 10 0	—
" " Country.	42 10 0	—
Genuine White Lead.	50 15 0	—
Refined Red Lead.	54 0 0	—
Sheet Zinc.	135 0 0	—
Spelter.	93 0 0	110 0 0
Old Lead, against account.	31 5 0	—
Tin.	11 5 0	—
Cut nails (per cwt. basis, ordinary brand).	1 3 0	—

\* For 5 cwt. lots and upwards.

## I BUY SCRAP METALS

ARTHUR P. COLLINS, Snow Hill, BIRMINGHAM.

Phone Central 1020. Telegrams: "Metals, Birmingham."  
Bankers: The National Provincial Bank of England, Ltd., Bennett's Hill, Birmingham.

### SLATES.

	in.	in.	£ s. d.	per 1,000 of
Blue Portmadoc.	20	10	11 2 6	1,200 at r. stn.
" "	16	8	5 10 0	" "
First quality.	16	10	10 12 6	" "
Blue Bangor.	20	10	11 5 0	" "
" "	20	12	11 17 6	" "
First quality.	20	10	11 0 0	" "
" "	20	12	10 12 6	" "
" "	16	8	5 10 0	" "

	in.	in.	£ s. d.	per 1,000 of
Eureka unfading green.	20	10	15 17 6	" "
" "	20	12	18 7 6	" "
" "	18	10	13 5 0	" "
" "	16	8	10 5 0	" "
Permanent Green.	20	10	11 12 6	" "
" "	18	10	9 12 6	" "
" "	16	8	6 12 6	" "

### BRICKS.

(All prices net.)		£ s. d.	per 1,000 of
First Hard Stocks.	£2 0 0	0	per 1,000 alongside, in
Second Hard Stocks.	1 16 0	"	" [river
Mild Stocks.	1 14 0	"	" "
Picked Stocks for Facing.	2 12 0	"	delivered at
Flettons.	1 10 0	"	raily, station.
Pressed Wire Cuts.	1 18 0	"	" "
Red Wire Cuts.	1 14 0	"	" "
Best Fareham Red.	3 12 0	"	" "
Best Red Pressed Ruabon Facing.	5 5 0	"	" "
Best Blue Pressed Staffordshire.	5 0 0	"	" "
Ditto Bullnose.	5 5 0	"	" "
Best Stourbridge Firebricks.	4 15 0	"	" "
22 in. Best Red Acorning Plastic.	4 10 6	"	Net, delivered in
Facing Bricks.			full truck loads
			in London.

3½" Accrington Best Red Plastic Facing Bricks.	£2 10 0	
3½" ditto Second Best Plastic ditto.	2 2 6	
Ditto Ordinary Secondary Bricks.	1 11 3	
Ditto Plastic Engineering Bricks.	1 17 6	
Sewer Arch Brick, not more than 3½ in. thickest part.	2 0 0	
3½" Chimney Bricks fit for outside work.	2 6 0	
3½" ditto ditto through and through.	2 0 0	
3½" Beaded, Ovolo and Bevel Jambes; Octagons; 2½" and 3½" radius Bullnoses; Stock patterns.	3 7 6	
Accrington Air Bricks, 9" x 2 course deep, each.	0 0 3	
Ditto ditto 9" x 1 course.	0 0 3	
Accrington Chamber Arches:—		
3 course deep 4½" soffit, per foot opening.	0 1 3	
4 " 4½" " " " "	0 1 8	
5 " 4½" " " " "	0 2 1	
6 " 4½" " " " "	0 2 6	
3 " 9" " " " "	0 2 1	
4 " 9" " " " "	0 2 11	
5 " 9" " " " "	0 3 6	
6 " 9" " " " "	0 4 6	

Net free on rail, or free on boat at works.

### GLAZED BRICKS.

HAND GLAZES (PER 1,000).		£ s. d.	per 1,000 of
White, Ivory, and Best.			
Salt Glazed. Buff, Cream, Other.			
Best. Seconds. & Bronze. Colours.			
Stretchers—	£12 7 6	£11 7 6	£13 17 6
Headers—	11 17 6	10 17 6	13 7 6
Quoins, Bullnose, and 4½ in. Flats—	15 17 6	14 17 6	17 17 6
Double Stretchers—	17 17 6	16 17 6	20 17 6
Double Headers—	14 17 6	13 17 6	17 17 6
One side and two ends, square—	18 17 6	17 17 6	21 7 6
Two sides and one end, square—	19 17 6	18 17 6	22 17 6
Splay and Squints—	17 7 6	16 7 6	21 17 6
Plinth and Hollow Bricks, Stretchers and Headers—			
5d. each 4d. each 6d. each 6d. each 5d. each			
Double Bullnose, Round Ends, Bullnose Steps—			
5l. each 4d. each 6d. each 6d. each 5d. each			
Round Internal Angles—			
4d. each 3d. each 5d. each 5d. each 4d. each			

### MOULD BRICKS.

Stretchers and Headers—	8d. each 8d. each 8d. each 8d. each 8d. each	
Internal and External Angles—	1/2 each 1/2 each 1/2 each 1/2 each 1/2 each	
Sill Bullnose, Stretchers, and Headers—	5d. each 4d. each 6d. each 6d. each 5d. each	
Majolica or Soft Glazed Stretchers and Headers.		£22 17 6
Quoins and Bullnose.		27 17 6
Compass bricks, circular and arch bricks of single radius 56 per 1,000 over above list for their respective kinds and colours.		ing 9 in. by 4½ in. by 2½ in.
Camber arch bricks, any kind or colour.		
1s. 2d. each.		
Stretchers out for Closers and Nicked Double Headers, £1 per 1,000 extra.		
These prices are carriage paid in full truck loads to London Stations.		
Thames Sand.	7 6 per yard, delivered.	
Pit Sand.	7 0 " "	
Thames Ballast.	6 0 " "	
Best Portland Cement.	36 0 to 41 0 delivered.	
Ground Blue Lias Lime.	21 0 per ton, delivered.	
Exclusive of charge for sacks.		
a. d. s. d. Per yard.		
Grey Stone Lime.	13 6 to 14 0 delivered.	
Stourbridge Fireclay in sacks 27s. 0d. per ton at railway station.		

### STONE.\*

Yellow Magnesian, in blocks.	per foot cube	£0 3 3
Red Mansfield, ditto.	"	0 2 9
Red Corsehill, ditto.	"	0 2 6
Darley Dale, ditto.	"	0 2 5
Greenhill, ditto.	"	0 2 4
Clooseburn Red Freestone, ditto.	"	0 2 2
Ancestor, ditto.	"	0 2 0
Beer Stone, delivered on rail at Seaton Station.	"	0 1 1
Ditto, delivered at Nine Elms Station.	"	0 1 7½
Chilmark, ditto (in truck at Nine Elms).	"	0 1 10½
Hard York, ditto.	"	0 2 0
Do. do. 6 in. sawn both sides, landings, random sizes.	per foot sup.	0 2 8

\* All F.O.R. London.

Do. do. 3 in. slab sawn two sides, random sizes.	per foot cube	£ s. d. 0 1 3
Bath Stone—Delivered in railway trucks at Westbourne Park, Paddington (G.W.R.), or South Lambeth (G.W.R.).		0 1 7
Delivered in railway trucks at Nine Elms (L. & S.W.R.).		0 1 8½
Delivered on road waggon at Nine Elms Depot.		0 1 9½
Portland Stone—Brown Whitened in random blocks of 20 ft. average, delivered in railway trucks at Westbourne Park (G.W.R.), South Lambeth (G.W.R.), or Nine Elms (L. & S.W.R.).		0 2 5½
Delivered on road waggon at Pimlico Wharf or Nine Elms Depot.		0 2 6½
White Baebed—2d. per foot cube extra.		

### TILES.

	s. d.	Divrd. at
Plain red roofing tiles.	42 0	per 1,000 ry. sq.
Hip and Valley tiles.	5 6	per doz.
Broseley tiles.	50 0	per 1,000
Ornamental tiles.	52 6	"
Hip and Valley tiles.	4 0	per doz.
Ruabon red, brown, or brindled ditto (Edwards).	57 6	per 1,000
Ornamental ditto.	60 0	"
Hip tiles.	4 0	per doz.
Valley tiles.	3 0	"
Selected "Perfected" roofing tiles: Plain tiles (Peaks).	46 0	per 1,000
Ornamental ditto.	48 6	"
Hip tiles.	3 10½	per doz.
Valley tiles.	3 4½	"
"Rosemary" brand plain tiles.	48 0	per 1,000
Ornamental tiles.	50 0	"
Hip tiles.	4 0	per doz.
Valley tiles.	3 8	"
Staffordshire (Hanley) Red or brindled tiles.	42 6	per 1,000
Hand-made sand-faced.	45 0	"
Hip tiles.	5 6	per doz.
Valley tiles.	5 6	"
"Hartshill" brand plain tiles, sand-faced.	45 0	per 1,000
Pressed.	42 6	"
Ornamental ditto.	47 6	"
Hip tiles.	4 0	per doz.
Valley tiles.	3 6	"

### OILS.

Rapeseed, English pale, per tun	£28 15 0 to £29 5 0
Ditto, brown.	26 15 0
Cottonseed, refined.	29 0 0
Oliva, Spanish.	39 10 0
Seal, pale.	21 0 0
Cocanut, Cochiti.	46 0 0
Ditto, Ceylon.	42 10 0
Ditto, Mauritius.	42 10 0
Palm, Lagos.	32 5 0
Ditto, Nut Kernel.	35 0 0
Oleum.	17 5 0
Sperm.	30 0 0
Lubricating, U.S.—	per gal. 0 7 0
Petroleum, refined.	0 6 6
Tar, Stockholm.	per barrel 1 6 0
Ditto, Archangel.	0 19 6
Linseed Oil.	per gal. 0 3 8
Baltic Oil.	0 3 11
Turpentine.	0 4 1
Putty (Genuine Linseed Oil).	per cwt. 0 11 0
Pure Linseed Oil.	
"Stority" Brand.	0 9 0

### GLASS (IN CRATES).

English Sheet Glass	15 oz. 21 oz. 26 oz. 32 oz.
Fourths.	5d. 6d. 6½d. 7½d.
Thirds.	5½d. 6½d. 7d. 8½d.
Fluted Sheet.	6d. 7d. —
Hartley's English Rolled Plate.	4d. 4½d. 5d.
White.	
Tinted.	
Figured Rolled.	5d. 6½d.
Reponsine.	4½d. 5½d.
Roll Sheet.	4½d. —

### VARNISHES, Etc.

Fine Pale Oak Varnish.	per gallon. £0 8 6
Pale Copal Oak.	0 10 0
Omnilac Copal Oak.	0 10 0
Superfine Pale Elastic Oak.	0 12 0
Fine Extra Hard Church Oak.	0 10 0
Superfine Hard-drying Oak, for seats of churches.	0 14 6
Fine Elastic Carriage.	0 12 0
Superfine Pale Elastic Carriage.	0 16 6
Fine Pale Maple.	0 10 0
Finest Pale Durable Copal.	0 18 6
Extra Fine French Oil.	1 1 9
Eggshell Flattening Varnish.	0 18 0
White Copal Beamel.	1 4 0
Extra Pale Paper.	0 12 0
Best Japan Gold Size.	0 10 0
Best Black Japan.	0 16 9
Oak and Mahogany Stain.	0 9 9
Brunswick Black.	0 8 0
Berlin Black.	0 16 0
Knottin.	0 10 0
French and Brush Polish.	0 10 0

The corporation of Ashton-under-Lyne propose to convert the contact beds at their sewage disposal works into percolating filters, at an estimated cost of £800.

A new branch library and cottage baths, built for the city council of Bradford, were opened on Tuesday. The library is the twenty-sixth branch library in the city, and the cottage baths are the last of thirteen approved by the corporation in January, 1914. The cost of the new premises has been £6,780.



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

### Effingham House,

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### OUR ILLUSTRATIONS.

Extensions to the Royal Naval College, Dartmouth, Devon. Sir Aston Webb, K.C.V.O., C.B., R.A., F.S.A., F.R.I.B.A., Architect.	
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Crematorium, Golder's Green, N., showing late additions. Messrs. Ernest George, A.R.A., and Alfred Yeates, F.R.I.B.A., Architects.	
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First Premiated Design for New Secondary School for Girls, Luton, for the Bedfordshire County Council. View elevations, plans, and sections. Messrs. J. R. Brown and Son, Architects.	
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House at St. George's Hill and "The Coppice," Weybridge, Surrey. Messrs. Castle and Warren, Architects.	
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### ARCHITECTURE AT THE ROYAL ACADEMY.

Though the collection in the Architectural Gallery at Burlington House is rather smaller numerically than last year, the work shown sustains the usual standard of interest to which we are accustomed at the Royal Academy. With, perhaps, one exception, the members have failed to maintain their lead on the present occasion, and, as might have been anticipated, there are few important undertakings represented on the walls, though the designs chosen are generally suitable and precisely what we might expect to see. The total number of works shown is twenty-six more than in 1915, and there are forty-four fewer contributions by architects than there were last year. The decrease would have been slightly less had Mr. Paul Waterhouse's drawing of his buildings at Mount Melville, N.B., not been hung by mischance in Gallery XI. among the watercolours (1419), and thereby hangs a tale.

The east end of the Architectural Room is well devoted to the display of Mr. Robert Atkinson's very inspiring and scholarly scheme for the improvement of the city of Bath, and which we were the first to illustrate on March 8 last. These large perspectives and plans (1639, 1641 and 1643) are most handsome, and the proposals are appropriately carried out, with due reference to the traditions of Bath, in keeping with the recent buildings so capably designed by the late J. M. Brydon and planned by Mr. Atkinson, with a recognition of the architectural importance of the Abbey Church in a manner such as any well-considered town-planning scheme would comprehend.

On the adjacent wall of the gallery is shown a strongly delineated view of the great block of buildings for the Cunard Company, now well advanced in execution, from the designs of Messrs. Willink and Thicknesse, the architects, at Liverpool (1663). Elevations, section and plan of this big and worthy piece of architecture will be found in the *Building News* for January 22 and 29, 1915, showing how the dignity of broad masses can be handled with interest due to well-studied detail becomingly based upon precedent. Strength and solidity primarily are fitting attributes for the premises of a world-wide shipping company such as the Cunard.

Sir Aston Webb, R.A., is represented by a pair of very different building schemes. In both he is characteristically good. We are to-day enabled to give a double-page plate to the more important of the two—viz., the extensions now in course of building at the Royal Naval

College, Dartmouth (1667). The key plan in the corner of the sheet shows the allocation of the premises, which we take to be placed some distance away at the rear of the College main buildings,\* and in regard to which the present big block is intentionally subsidiary, but belittling in relative scale as well as harmonious in style. The second exhibit by Sir Aston Webb is devoted to a set of sketches and plans of the Whiteley Hall and surrounding groups of Homes at Burnhill Park, Walton, these being part of the great scheme for which the late Mr. Whiteley, the "Universal Provider," left so much money (1683). The lay-out of this section given by the trustees to Messrs. Sir Aston Webb and Son to do is planned on an octagonal arrangement, having for its central point of interest a monument or a statue of the founder. The adjacent hall forms also an important feature, grouping pleasantly with the cottages which, as elsewhere on the estate, consist of two-storied and of one-floor tenements carried out in brick with tiled roofs. The lower range of dwellings, after the fashion of almshouses, are particularly picturesque and homely-looking.

In this connection we may mention some other Whiteley Homes at Burnhill Park, shown in this gallery by Mr. Ernest Newton, A.R.A. (1694). This work comprises four buildings—two containing four cottages each and two of a pair each, all very simply handled with hipped roofs and casement windows in wood frames; very quiet and unassuming, as they should be. The president of the Royal Institute of British Architects has another example of his proverbial skill with small domestic work, well shown here by an elevation with plan (1659) of houses on the Sanders Estate, Denmark Hill, where the big old villa residences no longer lettable on account of the changes in that neighbourhood, have been pulled down to give room for smaller middle-class homes on their site, their large gardens being preserved for the common use of the newcomers. The lay-out is quadrangular, with the common gardens in the centre and streets on all four sides. At present the war has stopped the building work, but the roads are formed ready to begin later when peace is proclaimed.

Sir Thomas G. Jackson, Bart., R.A., still makes his own drawings as heretofore, and thus enhances the value of his exhibits, which are much more useful and interesting than some of the dashing studies favoured by many. The style, familiar enough in these two blocks of new college premises in Oxford (1675-

1677), if not novel, possesses the quality of traditional fitness which, after all, is of the first consequence. The flatly treated segmental bays or oriels, as shown by Sir Thomas, carry on the wall lines and fenestration infinitely better than the more corpulent excrescences so often set up by architects who over-accentuate all they do. Some may think that Sir Thomas has not been quite happy in his corbelling out below, especially where the keystone comes between the ground floor windows. Timber dormers flank the central gable in the Hertford College façade to Holywell Street, where there is a small door with a cartouche over it and oddly located, which is quite in unison with the old 16th-century work in Oxford. The other block in Broad Street comes alongside the old octagonal chapel of "Our Lady of the Well," with its conical lead-covered roof. The additions are Elizabethan in manner, with the Indian Institute to the left and its octagonal turret behind; but we are not clear which actually comprises the present work thus represented.

Sir Ernest George, A.R.A., in conjunction with Mr. Alfred Yeates, shows the additions of the cloister and front premises carried out in completing the Crematorium at Golders Green. This autograph drawing we reproduce in one of our double-page plates to-day, so that it may be seen and will speak for itself. Other drawings of this work have appeared in our pages\* not long ago.

For the first time since his election as A.R.A., Mr. Edward S. Prior (in partnership with Mr. Arthur Grove, with whom he is in practice at Cambridge) has contributed to the Architectural Gallery this year. It is uncertain to what extent the work now exhibited (1707) was determined by the style of the first part of the Church of St. Osmund, built at Parkstone, seeing that Mr. Prior's work comprises the nave and south transept, the choir and eastern part having been previously carried out. The building is more peculiar than admirable in its array of Byzantine manner, so very square on plan with wide side aisles and three canopies. An ambulatory continues round behind the high altar, and by traversing the quasi-transepts as a processional way. The west end, like the transept fronts, has a big circular window, below which a segmental arch spans the western doorway, after the fashion adopted by the late J. D. Sedding, who was also very eclectic in his conceptions. A pair of florid brick turrets flank this central feature of the west façade, and circular windows occur in the clerestory with rectilinear tilings, which are also used in the semicircular

\* Illustrated by a four-page plate in the *Building News* for May 5, 1899, and the Master's House, April 28, 1905.

\* See *Building News*, May 20, 1914, and May 19, 1911.

headed fenestration of the aisles. This watercolour of many tints is by Mr. Macdonald Gill, and it has a woolly effect.

Mr. E. L. Lutyens, A.R.A., has been much in India of late, and does not exhibit this year, while Mr. Reginald Blomfield, R.A., is content to show his full-size detail draught for the St. Paul's Cathedral memorial slab to Sir L. Alma-Tadema, O.M., R.A. In the corner of the frame the whole design to a largish scale is included on the sheet. The work is to be carried out in brass in low relief, chased, and set on black marble. The two winged boys seem more spirited and somewhat older in the general study. Their position in the scheme recalls the Fontainebleau tradition, such, for example, as in the overdoor of the west front of the Jesuit College Chapel of Eu, with swags added after the manner of Jacques Lemercier, only based, perhaps, on earlier types by Gonjon or the sculptors of the 16th Century. The like suggestion occurs in the cartouche and boys by the Italian artist who designed the terracotta of Wolsey's arms at Hampton Court. In this memorial the flatness of the design, of course, makes all the difference by giving quite a variation to the texture of the whole thing, the swags being festooned on the flat, though, naturally, we presume the slab is a mural device, and the figure drawing will no doubt be reconsidered in execution, particularly the hands, as seen in this working sketch (1721).

Mr. Thomas H. Mawson is one of the largest contributors to the gallery. He sends his big diagram plan of the park system in the town-planning scheme in progress for the King of Greece at Athens, and a sheet of capital details of working-class area set out with second-class dwellings, also a bird's-eye perspective showing an ambitious series of big, important buildings, after the Greek manner, for the governmental centre of the city, involving a vast expenditure of money, and which necessarily will occupy many years to realise. It must be one of the most extensive town-planning schemes of its kind ever contemplated outside Germany in Europe. The park part of the work is necessarily less formal, and is of the landscape order, in which Mr. Mawson is a recognised master (1621, 1622 and 1623).

The Midland Agricultural College (1679), of which Messrs. Everard, Son, and Pick, of Leicester, send a watercolour by Mr. Charles Gascoyne, has a capital plan showing the central block associated with the wings by colonnades. The great hall and laboratory occupy the middle position. The women's hostel is on the right hand, with a dairy attached, and the students' hostel is on the left. All are conceived in a simple and facile manner of the Georgian period suitable enough for the purpose, and very nicely shown. Hanging close by (1680) are two views of a long range of stabling at Zakozial, in Russia, by Mr. E. Turner Powell, very capably picturesque with timbered gables, as crisp and telling in handling as could be by so qualified an architect.

"Blackfriars House," built by Messrs. Spicer Brothers, the paper merchants, is one of the largest and most successful warehouses of architectural merit lately built in London (1618), with well-sustained emphasis of solids and voids, piers and fenestration cleverly varied without restlessness. Mr. Francis W. Troup is the architect. The University College of South Wales and Monmouthshire, at Cardiff, is by Mr. W. D. Caroe, M.A. (1624), and we have favourably noted The Legations at Stockholm and Cetinje, by Mr.

Richard L. Allison (1614 and 1628). This square and high-roofed plastered white house, set off by its pantiles, at Stockholm, pleasingly perched on the summit of a hillock overlooking a canal, is well shown by a dashing watercolour.

Probably it was this manner of illustrating new buildings which led to Mr. Paul Waterhouse being placed out of this gallery as already mentioned. His Bridge and Island buildings at Mount Melville are charmingly depicted, and we suppose were mistaken for old ones. They are extremely picturesque, and as Scotch historic work so often has a French air about it we may be excused for thinking this gateway reminds us of the piling-up skyline of the Town Gate at Richelieu by Lemercier. This is no mere compliment, moreover. The bedroom by Mr. Baillie Scott (1627), with its rough big-timber construction inside, is low in pitch and has a very handsome bed-cover embroidered in colour all prettily drawn, but the whole thing looks too old-world for contemporary sanitary ideals. The old mill, Frimley (1649), is an exterior of a house combined with the body of a windmill, making a very quaint and homely combination by Mr. Reginald Poulter. Mr. A. N. Prentice is most happy in (1660) his stone-faced country house to be built in Gloucestershire.

We are inclined to reckon the new Government offices for the Dominion of New Zealand (1749) one of the most successful of recent street fronts to be seen in the West End. It is carried out in the Strand with skill and refinement by Messrs. Crickmay.\* This pen-and-ink view of it shown at the Academy does the work justice. Another admirable street building (1674) is by Messrs. Smith and Brewer, and is now erecting for Messrs. Heal and Son, the artistic bedroom furniture makers and pioneers of a better style. The drawing is very odd in manner with the unfortunate procession of queer figures set out in a line under one of the shopfront piers, bringing it down to the front of the picture, while the flags put up on the face of the upper piers needlessly add to the many vertical lines, whereas in reality the building has the merit of strong horizontal constructional composition. Close by in the gallery on the same wall, Mr. Austen Hall has on the line a nicely-tinted interior of his well-conceived Board room for the Metropolitan Water Board. The Ionic volutes of his columns are rather unusual, drooping like ram's horns, though boldly managed. Messrs. Percy Adams and Holden send three modest colour-washed sketches of their King's College for Women, Kensington, Queen Mary's Hostel† (1632, 1653, 1648). One is of the refectory interior, and the exteriors of the quad display the charm of a quiet, well-considered modern design thoroughly carried through by study and taste. Mr. Victor Wilkins shows his well-balanced Home for Educated Women Workers (1635) and Mr. Wm. Pite sends a birdseye of King's College Hospital, Denmark Hill, giving a panoramic idea of this enormous up-to-date establishment (1633). The Maternity Hospital, by Messrs. Hart and Waterhouse (1666), is built at Clapham in an admirably suitable way, and here is a nice drawing of the main entrance. The Leasowe Hospital for Crippled Children (1634) is a work of merit and little pretension by Mr. T. W. Haigh, of Liverpool, and here placed on the line. The Board of Trade Offices competition and Stepney Municipal Buildings competition are both represented in the room, and the Luton School

for Girls, of which we now publish the selected design by Messrs. J. R. Brown and Son, is in evidence by Mr. Arnold Mitchell's proposal (1687) strikingly set out in a strong, big perspective. "Grey Walls," Weybridge, is a good country house by Messrs. Castle and Warren (1692), and Messrs. Forsyth and Maule send a nice house and studio, Falmouth Harbour (1702). Mr. Rowland Paul exhibits the Bishop's Throne, Bristol Cathedral, in an autograph drawing of a solid, tasteful design with a flat tester on posts over (1713). We note a spirited view of the interior of Holy Trinity Church, Exmouth, a capacious and eminent church of bold style by Mr. Geo. H. Fellowes Pryne (1722). In this connection, Mr. Temple Moore's new church of St. Luke, Walsall, and St. Mary's, Sculcoates, Hull (1731-1735), also deserve mention as clever ecclesiastical buildings. Near by Mr. Sidney K. Greenslade's cathedral church design so prominently placed on the angle wall (1738) must be referred to, because this scheme is full of excellent detail, with strongly marked vertical lines between narrow, tall windows. The delicate pencil drawings are most refined, and the plan is full of study, with a processional walk all round the interior. The chapter house is on the south side. The drawing bears the date of 1902, otherwise it might have been intended for Liverpool. Mr. R. Anning Bell, A.R.A., sends a drawing of the Tympanum of Westminster Cathedral main portal, which we illustrated in the BUILDING NEWS for March 29 last. The University of Sheffield, showing the future quadrangle (1744), is a continuation of a great work by Messrs. Gibbs, Flockton and Teather. Close to it (1755) Mr. Arthur Keen, is represented by a comfortable, well-looking house recently built at Limpsfield. Messrs. Tubbs, Messer and Poulter are represented by some capital domestic and school work (1658, 1673, and 1678), all of which we shall illustrate. Mr. Barry Parker has in the middle of the east end of the gallery a striking model to scale of a town-planning scheme for the city of Oporto, Portugal, on which he has displayed considerable ability. Another model is by Mr. Anning Bell, A.R.A., for the decoration of the ceiling of the new staircase by Sir J. J. Burnet, R.S.A., at the British Museum.

In this notice we may legitimately include the most successful portrait, by Mr. Arthur Haeker, R.A., in the first gallery, of Mr. Ernest Newton, A.R.A., President of the Royal Institute of British Architects. It is an academic likeness, and a very handsome picture. Lieut. Maurice Webb, R.E., painted by Sir Luke Fildes, R.A., is the subject of a fine portrait presented by the artist to Sir Aston Webb, R.A.

#### THE ROYAL SOCIETY OF MINIATURE PAINTERS.

On its own merits this always interesting exhibition has a special claim on visitors this year at the Grafton Galleries, inasmuch as the proceedings are to be handed over to the British Women's Hospital (Star and Garter) Fund for totally disabled soldiers and sailors. Nor is that all, as a number of the exhibitors have specially worked to benefit the fund, and their works will be found indicated by an asterisk.

One of the best exhibits is that by Miss Nellie Hepburn-Edmunds, V.P.R.M.S., embracing a portrait of Mr. H. G. G. Ashton, a daughter of Mr. Clifford Gray, the late Sir Robert Laidlaw, and others. One is glad to see Miss Hepburn-Edmunds

\* We gave a detail of this elevation on December 15, 1915.

† A general exterior appeared in the BUILDING NEWS, August 1, 1913.

so well represented, remembering her ill fortune at Brussels, where some of her work is still interned; and that she, possibly, has only just escaped loss or delay at Dublin, where it was requested that another exhibit of hers might remain till June, but which for reasons quite unconnected with the fiasco of the organisers of the "revolution" she declined to permit to remain.

Miss Kate Walker shows a portrait of the son of Mr. Benjamin Walker, A.R.I.B.A., and a portrait. Among five others, Miss Edith M. Hinekey, A.R.C.A., has a good portrait of Mrs. Algernon Layburn. Mrs. Lucy M. Macdonald's contribution to the Fund is "The Babe," a fine, fat specimen of infant humanity. Of those sent by Miss Helen Mary Kempthorne "A Portrait after an old Dutch Painting" commends itself. Miss Alyn Williams, P.R.M.S., scores well with "H.R.H. Princess Maria Jose of Belgium," which is to be sold for the crèche in Belgium bearing her Highness's name. "A Little Danish Girl," by Miss Louise Conder, is one of the best things shown. Miss Alice James, R.W.A., sends one of the most satisfactory and characteristic portraits of King Edward VII. we remember. Miss Marjorie Robinson's "Brigit of the Gael," is excellent. A good frame of thirteen medals is that by Mr. Paul Wissart.

Mrs. Mary Mitchell's starred exhibit is a delightful restful-looking "Member of the Society of Friends." Of five contributions, all above the average, Miss Gladys Kathleen Bell takes high place with "Virgin and Child, after Botticelli." Mr. Charles Spence-Laye brings real humour to the show with two of his five well-rendered exhibits: "Plying His Needle and Thread," and "The Best of Friends Must Part." In the latter the subject is on the way to the pawnbrokers with the old family clock. "They that go down to the Sea in Ships," by Mr. Victor Wyatt Burnand, is a powerful picture of one of the real old salts, whose perils are multiplied just now so pitilessly by the pirates of the sea. A study of aged manhood only less interesting than the last is Miss Blanche Hacker's "Old Shepherd." Mr. Chris Adams sends a good miniature of Mr. Asquith. Miss Ethel M. Morgan has well caught the national character of her "Italian Peasant." Another welcome old lady is Miss Winifred Swayne's "Grannie Poole."

We should add that the interest of the exhibition will be enhanced by four afternoon lectures, each to be given at 3.15 p.m. That to-day is on "Our Government and Art," by Mr. E. R. Dibden, the curator of the Walker Art Gallery, Liverpool; the second, on May 10, on "Miniatures and Illumination," by Miss Nellie Hepburn-Edwards, the Vice-President; the third, on May 17, by Mr. Hal Hurst, on "A Plea for the Small Crafts," and the last, on May 24, on "The Art of Framing Pictures," by Miss Molly Powers.

#### THE MOSTYN EXHIBITION.

An exhibition which opened in the same galleries on April 8 of Mr. Tom Mostyn's works is still on view till May 27, and a portion of its proceeds are to benefit the same deserving fund as that to which the Miniaturists are contributing.

There are forty-nine exhibits, the most noticeable being "The Puppet Show" (21); "Peace" (26); "Isolation" (31); "The Feast" (33); "Fury" (47), and "The Forest Feast" (48).

There are several good portraits—one of "Sir Alfred Goodson" (43), and another, of "A Lady" (37), being, perhaps, the best.

#### PHOTOGRAPHS BY WALTER THOMAS.

An exhibition of about forty photographs by the veteran photographer Walter Thomas, is now on view at the Camera Club, 17, John Street, Adelphi, W.C., and will well repay a visit. It goes without saying that works by Mr. Thomas are of high technical quality. Having a thorough mastery of the art, he has chosen to display his powers of selecting felicitous aspects and striking effects of light and shade, often by the sacrifice of redundant detail, in a wide variety of subjects. All the exhibits appear to be enlarged bromides, most of them toned, and a few treated in black on cream paper. There are several admirable architectural pictures, including No. 4, the northern angle of the graveyard of "Temple Church," where gradations of bright patches of light on the weather-worn monuments and the thirteenth century buttresses to the nave impart vivacity to an otherwise sombre scene. Two views in the village of "Port Aven, Brittany," Nos. 1 and 40, also illustrate the advantages of knowing what to omit. Perhaps the most popular prints are the studies of children, and among the best of these is "Cs," No. 21, the artist himself and his little grandson Clement seated, the latter with fruit basket on lap, side by side in an orchard. No. 23, "Clement," depicts the same boy with parted lips looking eagerly upward during the recital by an unseen narrator of some fairy tale; and other charming works are "Paul," No. 19, and "His Pet," No. 14, a sleepy-headed boy seated on a step in a garden drowsily watching an equally somnolent white rabbit. There are several very attractive studies of woodland scenery, including No. 13, a few silver birches on "A Kentish Common"; No. 35, other silver birches overhanging a pond; and No. 28, "A Summer's Day," elms in a field row, with sheep in the foreground. "Summer Flowers," No. 11, is one of those examples of still life that so quickly weary unless, as here, carefully chosen—a few roses and azaleas in an open vase. Some fine untouched atmospheric and cloudland effects are displayed, notably in No. 25, "Sunset on the Thames," depicted below Tilbury, we fancy, where a glowing evening sky is reflected on the slightly broken waters; and "Nightfall," from near the mouth of the Tyne. There are several attractive harbour and quayside scenes, such as "Polperro," No. 9; "In the Herring Season, Scarborough," No. 12, a row of bright-faced fisher-girls at a table cleaning fish; "In a West Coast Harbour," No. 31, the sterns of several boats seen side by side from across the water; "The Fish Sale, St. Ives, Cornwall," No. 16, where a group of seamen stand with their backs to the spectators watching the bids received by the auctioneer, a smack's hull and a line of newly-washed linen providing an effectively contrasted background. "Off to the Fishing Grounds," No. 41, is a birdseye view from the cliffs of the rugged coast off Polperro, life being imparted to the scene by the three or four boats that creep out of the creek. In 38 we see an elderly, old-fashioned couple sauntering along the Victoria Embankment wall. A vivid pictorial effect is gained in the interior genre work No. 7, "Repairs," by the brilliant ray of light which illumines the profile of the old woman who is sewing, her cotton reel, and part of the garment she is working on. The exhibition will remain open until the 20th inst.

The Hayes electricity sub-station, belonging to the Cardiff Corporation, is to be extended at an estimated outlay of £1,200.

#### THE R.I.B.A. COUNCIL'S REPORT.

At the eighty-second annual meeting of the Royal Institution of British Architects, held on Monday evening at 9, Conduit Street, W., the President, Mr. Ernest Newton, A.R.A., in the chair, the report of the Council for the past year was submitted by the chairman.

It stated that the loss, by death, had been seventeen Fellows, four retired Fellows, fourteen Associates, three Licentiates, one Hon. Associate, and one Hon. Corresponding Member. In addition to these losses, twelve Associates, seven Licentiates, and twelve students had laid down their lives in the service of their country. The present subscribing membership of the Royal Institute compared with corresponding period of 1912, 1913, 1914, and 1915 is as follows:

Year.	Fellows.	Associates.	Hon. Associates.	Total.
1912 ....	859	1,581	56	2,496
1913 ....	847	1,630	54	2,531
1914 ....	852	1,695	56	2,603
1915 ....	857	1,713	54	2,624
1916 ....	852	1,679	52	2,583

During the official year thirty-three Fellows and forty-four Associates had been elected. There are now 1,919 Licentiates on the roll. Since the publication of the last annual report twelve Licentiates have passed the examination qualifying for election to the Fellowship, and seven of these have been duly elected as Fellows.

The progressive examinations were held in June and November-December, 1915. The results are shown in the following table:—

	Admitted.	Exempted.	Examined.	Passed.	Relegated.
Preliminary Examination	110	53	57	38	19
Intermediate Exam. ....	95	60	35	16	19
Final and Special Exam.	81	—	81	37	44

The statutory examination qualifying for candidature as district surveyor in London, and for candidature as building surveyor under local authorities, was held in London in October, 1915. There were eight candidates, of whom five passed.

The following grants have been made by the Council.—Architectural Association, £500; Architects' Benevolent Society, £100; Architects' Volunteer Training Corps, £50; Artists' War Relief Exhibition, £10; Society of Dilettanti, £50; and British School at Rome, £50. In addition to the special grants to the Architectural Association mentioned in the last annual report, the Council have been enabled to present to that body a further sum of £400.

The work of the Royal Institute has, of necessity, been seriously affected by the war. The programme of sessional papers has been suspended and only business of a routine and uncontroversial nature has been transacted at the general meetings. The prize competitions for the year have again been postponed, and the examinations which in the ordinary course would have been held in November, 1915, have been cancelled. The Record of Honour now contains the names of some 2,250 architects who are serving in the Forces. Included in this number are 57 Fellows, 426 Associates, 228 Licentiates, and 272 students.

The most important work of the year, the Council state, has been done by the Architects' War Committee and its two subsidiary committees. The land surveys, set on foot with the assistance of the Royal Institute produced paid employment for a number of members of the profession whose practices had been stopped by the war. The expenses of all the surveys are paid by the R.I.B.A., while the salaries of the workers are paid by grants from the National Relief Fund.

The statement of accounts shows that the finances of the Institute have met the strain of war conditions with good success. There has been a heavy fall in the receipts from examination fees, and the disbursements of all Members and Licentiates serving with the Forces have also been remitted as a measure which cost the Institute about £700 in 1915 and will cost over £900 this year. In spite of these and other losses, there is a real surplus of £719, in place of an anticipated

deficit of £260 in the financial year ended December 31 last, and a moderate surplus is also anticipated in the current year.

The Board of Architectural Education (Mr. John Slater chairman and Mr. Gerald C. Horsley hon. secretary) report that during the year 104 dissertations have been received and adjudicated on, and of these 66 have been approved. The Board have conducted the Preliminary, Intermediate, Final, and Special Examinations as usual. The new scheme of examinations has been postponed until after the war; but the Council, on the recommendation of the Board, have decided to discontinue the Preliminary Examination for the future. The Board will still continue to examine in the subjects of geometrical drawing and the elements of perspective, and in freehand drawing, those candidates who are unable to produce satisfactory drawings showing their knowledge of any of these subjects. The Council have also decided to hold the Intermediate and Final Examinations once only this year, viz., in June. The Council referred to the Board an application from the American Institute of Architects suggesting that a collection of English architectural drawings both of buildings and of woodwork, metal, glass decoration, and furniture, should be formed and forwarded to the Architectural School at Harvard with a view to their making a selection for purchase, and a sub-committee is now engaged in the work of selection.

The Town-Planning Committee (Sir Aston Webb chairman and Mr. W. R. Davidge hon. secretary) report that much information is being collated on the subject of the suggested Thames barrage between Tilbury and Gravesend. A circular to local authorities contemplating town-planning and improvement schemes has been approved by the council. A draft resolution on the subject of arterial roads in Greater London has been proposed and approved, and will be proposed by Sir Aston Webb at the final conference on this question to be convened by the Local Government Board. The proposal for strengthening the Charing Cross railway bridge, which is being considered by a committee of the House of Lords, was considered very unsatisfactory, and not only is evidence to be given in opposition to the scheme by the R.I.B.A. and the London Society, but efforts are being made to secure consideration to the whole question of road communication across the Thames at Charing Cross.

The Art Standing Committee report that the war has claimed many of their members. Mr. Edward Warren, the chairman, has been appointed administrator of a large military hospital at Corfu, and Mr. Redfern, one of the hon. secretaries, is engaged upon war work for the Government, necessitating his temporary residence in Scotland. Mr. L. Rome Guthrie, Mr. Wyatt Papworth, and Mr. Philip E. Webb have joined various branches of the fighting forces. Attention has been given by the committee to the prevalent de-facement of London by advertisements and sky signs, and the council have been in communication with the London County Council urging upon them the promotion of legislation to strengthen the control of street advertisements. Though the County Council rightly consider that the subject is such as could not be dealt with during the war, it is hoped that the views which the committee have formulated may prove useful in the future. Against the project to demolish the Tolbooth steeple, Glasgow, and to erect it between London Street and Gallow Gate as a part of the Glasgow Cross Improvement Scheme, a strong representation was made by the Glasgow Institute of Architects, and it was supported by the committee, but action became unnecessary, as the scheme is abandoned for the present. The proposed substitution of a ferro-concrete bridge at Goring-on-Thames for the existing picturesque wooden one has been abandoned, and the structure will be merely repaired.

The Literature Standing Committee (Mr. C. Harrison Townsend, chairman, and Messrs. C. Spooner and Martin S. Briggs, hon. secretaries) report that a collection of drawings, prints, and photographs of architectural works in Belgium destroyed during the war has been

formed, and is available for reference. Mr. C. Harrison Townsend has presented to the library some 150 photographs of mosaic work in Italy, Sicily, and the Holy Land, and donations of a large number of valuable drawings by Norman Shaw, William Burgess, G. E. Street, Eden Nesfield, and Philip Webb have been added to the Institute collection. Owing to the need for the utmost economy during the war the purchase of books has been restricted as far as possible.

The Literature Standing Committee (Mr. Max Clarke, chairman, and Messrs. Matt Garbutt and Alan E. Munby, hon. secretaries) state that a sub-committee is considering the question of the position of the architect and his payment in connection with the employment of expert engineers or other specialists to advise upon special matters or to design details, as in the case of ferro-concrete structures or those consisting largely of metal, or in the case of large electric or heating installations. The committee considered and reported upon the custom of architects entering the witness-box to disparage the work and belittle the claim to payment of brother architects who were unfortunately compelled to sue for their fees. As a result of the committee's report, the council have added to the paragraphs upon professional conduct, published in the "Kalendar," the following:—"That in the opinion of the council, the Royal Institute having adopted a scale of professional charges, it becomes the duty of members, when giving advice relating thereto, not to weaken the value of the scale." The committee have had before them several complaints as to advertising by members, and draw general attention to the council's opinion that advertisement by an architect is a contravention of By-law 24. The question having been raised as to the number of hours which should be considered to constitute a professional "day" in the schedule of charges, the council have invited communications from members upon the point, and have also directed inquiry to be made as to the views of allied societies and the practice of kindred institutions. Up to the present a decision has not been arrived at.

The Science Standing Committee report that in conjunction with the District Surveyors' Association they are collecting information as to the effect of enemy bombs on buildings and the resistance of various structural materials.

The President, in moving the adoption of the above report, announced that Mr. William Woodward, who was undergoing treatment in a nursing home, after an operation, had commented on the report in writing.

Mr. Woodward's letter having been read by the Secretary, a short discussion followed, in which Messrs. Sydney Perks, F.S.A., H. Hardwick Langston, C. H. Brodie and W. Henry White took part, and the report was adopted.

Mr. William Henry Sutton, of Roseneath, Bramhall Park, Cheshire, estate agent, senior partner in the firm of Messrs. W. H. Sutton and Sons, estate agents, valuers, and surveyors, who died on December 8, aged sixty-nine, left estate valued at £38,426.

As the outcome of an arbitration, the urban district council of Fleet, near Basingstoke, will pay a sum of £860 to the contractor for their drainage scheme as compensation on account of the work being stopped through the Treasury refusing, on account of the war, to advance more money on a loan of £30,000.

In regard to the Town Planning Act, the council of the Liverpool Architectural Society have presented a report affirming that if architecture is to take its proper place in regard to town planning, it is necessary that an architect should be professionally engaged on each scheme during the early stages of its preparation.

The President and Council of the Royal Academy have purchased the following works under the terms of the Chantry Bequest: "The Poulterer's Shop," oil painting, by Frank Brangwyn, A.R.A.; "The Kiss," statue, marble, by Hamo Thornycroft, R.A.; "The Lady with the Amethyst," oil painting, by Charles Shannon, A.R.A. These three works are among those now on view at Burlington House, and will be transferred, at the close of the exhibition at the beginning of August, to the Tate Gallery.

## THE CHEMISTRY OF PORTLAND CEMENT.\*

By G. A. RANKIN.

(Concluded from page 305, March 29.)

### THREE TYPES OF CEMENT.

The similarity of the three types of cement clinkers we have been dealing with is not surprising if we consider their chemical compositions. The cement of lime, alumina, silica of each type is over 90 per cent., while the composition relative only to these three oxides approaches a constant, the maximum difference being 2.5 per cent. in the case of alumina, since there is 6.5 per cent. in white cement and 9 per cent. in grey cement. We should expect, therefore, and it has been found experimentally to be true, that these three types of cement clinker are made up largely of the same constituents; these are, as we have shown, tricalcium silicate, dicalcium silicate, and tricalcium aluminate, all compounds of the three major components of cement.

Having shown that the components of Portland cement are  $\text{CaO}$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{SiO}_2$  in certain rather definite proportions, and that the constituent substances are definite compounds of these oxides, let us consider the percentage of these compounds in the clinker. For example, let us take the average grey cement whose chemical composition has been given in the Table. If the clinker for this cement has been perfectly burned, it will consist of about 36 per cent.  $3\text{CaO} \cdot \text{SiO}_2$ , 33 per cent.  $2\text{CaO} \cdot \text{SiO}_2$ , 21 per cent.  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ , and 10 per cent. of the minor constituents.

In the actual manufacture of Portland cement, however, the clinker is not always perfectly burned, that is, the raw materials are not always ground fine enough or heated to a sufficiently high temperature so that the chemical reactions are completed. The proportions of the constituents in commercial cement will then be somewhat different from those given. With our present knowledge of the nature of the chemical reactions, however, it is possible to state which of the constituents will not be completely formed. It will be remembered that, in the discussion of these chemical reactions, it was shown that  $3\text{CaO} \cdot \text{SiO}_2$  is the last constituent to form completely, and this compound is formed by combination of  $\text{CaO}$  with the compound  $2\text{CaO} \cdot \text{SiO}_2$ . It is evident, therefore, that when commercial clinker is not perfectly burned, there is less  $3\text{CaO} \cdot \text{SiO}_2$  and more  $2\text{CaO} \cdot \text{SiO}_2$ , and  $\text{CaO}$  will be present as an individual constituent. In the example given there will be less than 36 per cent.  $3\text{CaO} \cdot \text{SiO}_2$ , more than 33 per cent.  $2\text{CaO} \cdot \text{SiO}_2$ , and there will be a certain percentage of free  $\text{CaO}$ . The exact percentages will, of course, depend upon how near to completion the reaction  $\text{CaO} + 2\text{CaO} \cdot \text{SiO}_2 = 3\text{CaO} \cdot \text{SiO}_2$  has been carried.

### COMPLETE REACTION.

That the manufacture of good Portland cement necessitates that this reaction be carried practically to completion is evident if we consider certain facts in regard to the influence of lime on the physical properties of Portland cement. Practical experience has shown that cements containing much free lime are unsound, and that concrete made from them will in time disintegrate. This is due to the expansion of free or uncombined lime, when it reacts with water to form calcium hydrate. If, however, the lime in cements is all combined, they are sound and of good strength. The importance of the reaction  $\text{CaO} + 2\text{CaO} \cdot \text{SiO}_2 = 3\text{CaO} \cdot \text{SiO}_2$  is, therefore, apparent, since this reaction must go practically to completion in order that a sound cement may be produced. It has long been recognised that anything which will promote the combination of lime during burning will promote soundness in cement and that the greater the percentage of combined lime the greater the strength of the cement.

The average lime content of cement to-day is about 62.5 per cent., which is largely combined as  $3\text{CaO} \cdot \text{SiO}_2$ ,  $2\text{CaO} \cdot \text{SiO}_2$ , and  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ . If the percentage of  $\text{CaO}$  were increased, it would tend to combine with the  $2\text{CaO} \cdot \text{SiO}_2$  to form more  $3\text{CaO} \cdot \text{SiO}_2$  and would so combine if the time of burning were

\* Read before the American Concrete Institute Convention.



long enough and the temperature sufficiently high. Since practical experience has shown that increased percentage of lime increases both the percentage of  $3\text{CaO} \cdot \text{SiO}_2$  and the strength of cements, it may be inferred that the strength of cements is largely due to the compound  $3\text{CaO} \cdot \text{SiO}_2$ . If this is true, it is desirable that Portland cement should contain as high a percentage of this compound as is possible. An average Portland cement contains about 30 to 35 per cent. of this constituent. That Portland cement contains such a small amount of  $3\text{CaO} \cdot \text{SiO}_2$  is due partly to the fact that this constituent is formed with great difficulty, and also to the fact that about 40 per cent. is the maximum yield which could be obtained from raw materials having the same  $\text{CaO}$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{SiO}_2$  composition as are now used.

Before taking up, however, a discussion of the probable value of  $3\text{CaO} \cdot \text{SiO}_2$  as a cementing material and the possibility of increasing its percentage in Portland cement, let us consider what is known as to the cementing value of the constituents of Portland cement, taking up first the changes which take place when Portland cement is mixed with water and hardens.

#### CHEMICAL ACTION WITH WATER.

When Portland cement is finely pulverised and mixed with water, a hard mass is formed by chemical action between the water and the constituents of the cement. While there is still much to be learned as to the chemistry of the hardening of Portland cement, sufficient data on the hydration of the individual major constituents have been obtained to enable us to account for the gradual hardening and increase in strength and to indicate the relative value of these constituents as cementing materials.

Let us now consider the hydration of the three major constituents  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ ,  $3\text{CaO} \cdot \text{SiO}_2$ ,  $2\text{CaO} \cdot \text{SiO}_2$ , in the order named. When pure  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$  is mixed with water, an amorphous hydrated material is first formed. This material sets and hardens very rapidly. The compound  $3\text{CaO} \cdot \text{SiO}_2$ , when mixed with water, also sets and hardens rather rapidly. In the case of this compound, as in the case of  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ , the setting and hardening is due to the formation of an amorphous hydrated material on the individual grains which are thus cemented together. The extent of the hydration or the percentage of amorphous material which each grain will yield depends upon the percentage of water used and the time. With a given percentage of water, the amount of amorphous material formed from the amount of the compound  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$  in a given time is much greater than for the compound  $3\text{CaO} \cdot \text{SiO}_2$ ; that is, the compound  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$  reacts with water much more rapidly than the  $3\text{CaO} \cdot \text{SiO}_2$ . The compound  $2\text{CaO} \cdot \text{SiO}_2$  reacts very slowly with water, and it is only after a long period of time that sufficient amorphous hydrated material is formed to cement together the grains of this compound and so form a hard mass.

The amorphous hydrated material formed by the action of water on the constituents of cement does in time, no doubt, crystallise to some extent. From the data available it would appear that the crystals formed are calcium hydrate and some crystalline hydrate derived from  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ . Apparently no crystalline hydrate of the calcium silicates is formed.

From this brief description of the action of water on the constituents of Portland cement, it will be seen that the setting and hardening of Portland cement involves the formation of an amorphous hydrated material which subsequently partially crystallises; that the initial set is probably due to the hydration of  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ ; that the hardness and cohesive strength at first are due to the cementing action of the amorphous material produced by the hydration of this aluminate and of the  $3\text{CaO} \cdot \text{SiO}_2$ ; and that the gradual increase in strength is due to further hydration of these two compounds together with the hydration of the  $2\text{CaO} \cdot \text{SiO}_2$ .

Of the three compounds which thus take part in the setting and hardening of Portland cement, the  $3\text{CaO} \cdot \text{SiO}_2$  appears the best cementing constituent; that is, this compound is the only one of the three which, when

mixed with water, will set and harden within a reasonable time to form a mass which in hardness and strength is comparable to Portland cement. The compound  $2\text{CaO} \cdot \text{SiO}_2$  requires too long a time to set and harden in order to be in itself a valuable cementing material. The compound  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ , while it sets and hardens rapidly, is rather soluble in water, and is not particularly durable or strong.

From this, again, it follows that the compound tricalcium silicate is the essential constituent of Portland cement; consequently, the higher its percentage the better the cement. Granting for the time being that this is true, let us consider the nature of an investigation which might lead to the production of a cement containing a much higher percentage of  $3\text{CaO} \cdot \text{SiO}_2$  than is contained in Portland cement as made to-day.

#### EFFECT OF LIME.

In the discussion of the constitution of Portland cement we have shown that an average Portland cement contains about 30 to 35 per cent. tricalcium silicate, a proportion which closely approaches the maximum yield if the components are in the proportions of an average Portland cement. It has also been shown that an increase in the lime content of an average cement will increase the percentage of  $3\text{CaO} \cdot \text{SiO}_2$  if the conditions of burning are such that the reaction  $\text{CaO} + 2\text{CaO} \cdot \text{SiO}_2 = 3\text{CaO} \cdot \text{SiO}_2$  goes to completion. This, however, necessitates finer grinding of the raw materials, as well as burning for a longer time and at an increased temperature—factors which materially affect the cost of production. Now, the data discussed above were obtained by applying the results obtained by an investigation of the equilibrium relations found to exist in the system  $\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot \text{SiO}_2$  to the actual manufacture of Portland cement; but this by no means implies that in presence of other components the conditions required for the production of an adequate amount of flux should not be more favourable and economical. In other words, the study of other systems may establish the economic possibility of producing a cement containing a high percentage of tricalcium silicate. For example, if some substance were substituted for the component  $\text{Al}_2\text{O}_3$  in the system  $\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot \text{SiO}_2$ , the study of the equilibrium relations found to exist in this new system would enable one to determine whether or not it would be economically possible to produce a cement containing a high percentage of  $3\text{CaO} \cdot \text{SiO}_2$  from raw materials of which the components are  $\text{CaO}$ ,  $\text{SiO}_2$ , and this third substance. Thus if  $\text{Fe}_2\text{O}_3$  were substituted for  $\text{Al}_2\text{O}_3$ , we could from the study of the system  $\text{CaO} \cdot \text{Fe}_2\text{O}_3 \cdot \text{SiO}_2$  ascertain the fineness of the raw material, and the time and temperature of burning, necessary to secure a clinker containing the highest percentage of  $3\text{CaO} \cdot \text{SiO}_2$  which could be economically produced from raw materials of which the major components are  $\text{CaO}$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{SiO}_2$ . This would require that one determine the nature of all compounds formed in mixtures of these three oxides which, when burned, contain  $3\text{CaO} \cdot \text{SiO}_2$ , and that we establish the identity, melting temperature, and rate of formation of  $3\text{CaO} \cdot \text{SiO}_2$  in such mixtures. Instead of substituting a single substance, it would undoubtedly be more desirable to substitute a number of different substances, since the presence of several produces a lower melting flux, and thus makes possible the formation of  $3\text{CaO} \cdot \text{SiO}_2$  at a lower temperature. By proceeding in this way to determine systematically the various mixtures of substances, which, when burned, give high percentages of  $3\text{CaO} \cdot \text{SiO}_2$ , it would not seem at all improbable that we may discover some mixture which could be economically manufactured and which would result in the production of a cement far superior to the Portland cement now made.

#### ESSENTIAL CONSTITUENT.

In this discussion we have assumed that tricalcium silicate is the essential constituent of Portland cement. If subsequent investigation should show that other constituents possessed superior cementing qualities, the nature of an investigation to determine the mixture which would economically produce the highest percentage of such a constituent

would be of the same general nature as that described for tricalcium silicate. Indeed, the determination of the constituents (compounds) which possess the best cementing qualities for various purposes may be determined in just this way, since the systematic study of the component found in cement enables one to isolate the separate compounds formed and to determine their cementing qualities pure and in mixtures.

In conclusion, let us recapitulate the main points contained in this paper. The value of Portland cement depends upon the fact that when finely powdered and mixed with water it forms a hard mass; and the strength and permanence of this mass depend upon the constituents of the cement. The major constituents are tricalcium silicate, dicalcium silicate, and tricalcium aluminate. Of these constituents, the compound tricalcium silicate is the one which hardens and develops the greatest strength within a reasonable time. This most important constituent, which is the one formed with the greatest difficulty, makes up only about 30 to 35 per cent. of an average normal Portland cement. It may be said, therefore, that the essential process for the manufacture of Portland cement is the formation of this compound, and that any improvement in this process yielding an increased percentage of tricalcium silicate will increase the cementing value of Portland cement. In order to determine the most economical process for producing tricalcium silicate in the highest percentages, it will be necessary to study the rate of formation of this compound in series of mixtures of various substances; this, in turn, necessitates the determination of the equilibrium relations of tricalcium silicate at high temperatures in such mixtures. Such a procedure will lead sooner to the discovery of the optimum composition in various cases and for various purposes than the empirical cut-and-dried methods which hitherto have been the only ones tried.

With regard to the proposal of the London County Council to double the single portions of the tramway track between Woolwich and Abbey Wood, the Woolwich Borough Council have given their consent to the work at High Street, Plumstead, and Bostall Hill being commenced at once.

At the annual meeting of the Sheffield Master Plumbers' Association, held at the Builders' Exchange, in that city, last week, Mr. W. A. Uttley was elected president in succession to Mr. F. G. Norton, Messrs. H. A. Ward and E. Bond as vice-presidents, and Mr. J. Baxter Corrie as secretary.

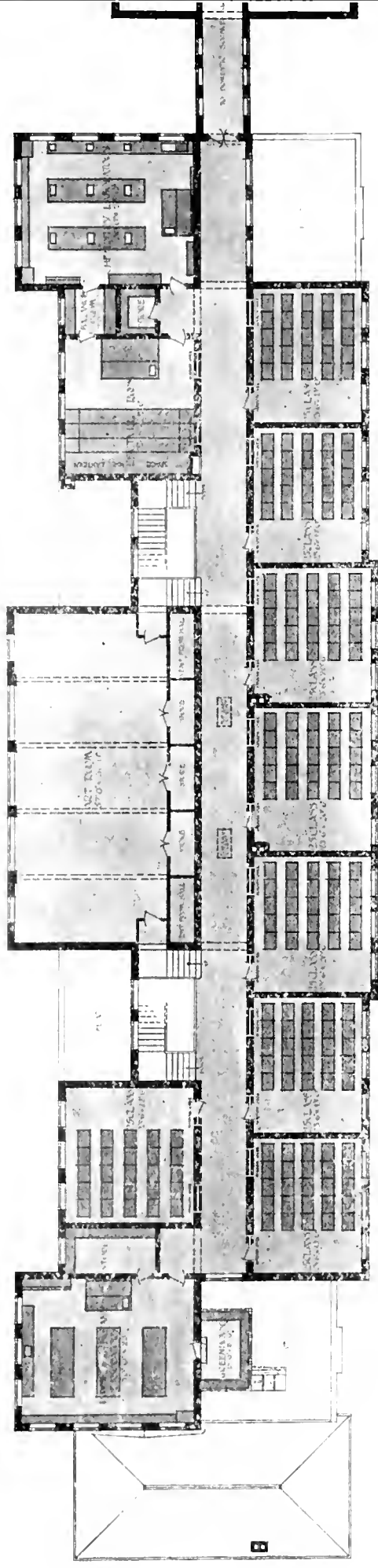
The corporation of Accrington have received the sanction of the Local Government Board to the scheme for the extension of the electric generating plant and the erection of a chimney and flues in connection with the destructor. The plant will cost £14,000, and the boiler, chimney, and flues £7,000.

The city council of Coventry have adopted a scheme for filling the council-chamber windows in the new municipal building with stained-glass figures of historical personages connected with the growth of the city. Godiva will be represented arrayed not in her flowing hair alone, but as a Saxon countess.

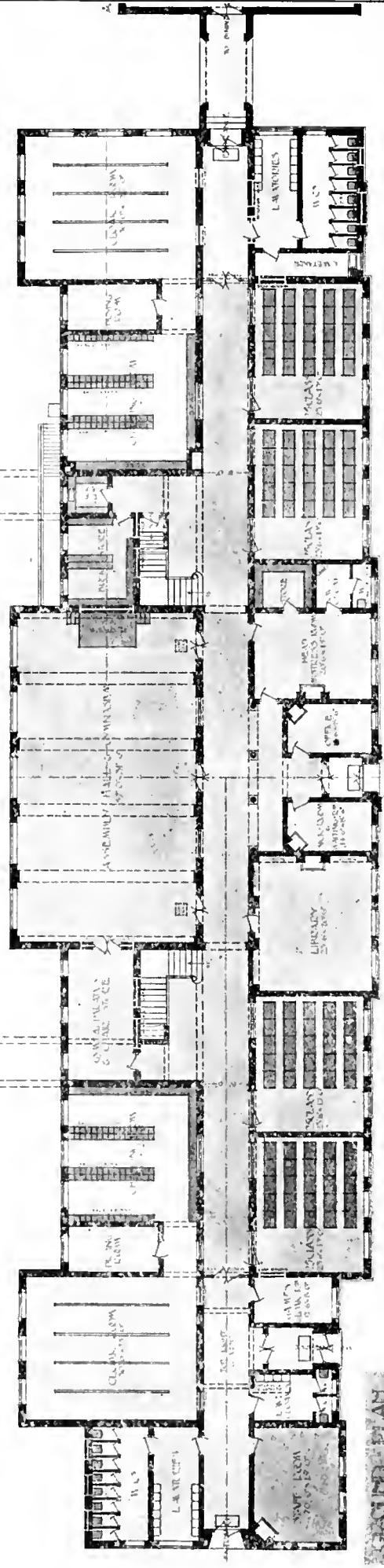
The Church of St. Paul, Goodmayes, Chadwell Heath, of which the three eastern bays of the nave and its aisles were built in 1910, is about to be enlarged by the erection of the chancel and vestries, leaving the two western bays of the nave to be added at some future date. Messrs. Chancellor and Sons, of Chelmsford, are the architects.

At the last meeting of the Wiltshire Surveyors' Association held at Marlborough, an interesting discussion on the wages of road men was initiated by the President, Mr. J. George Powell, the county surveyor, who expressed the opinion that the year upon which they had now embarked would be an anxious one for surveyors, both in regard to labour and the procuring of materials. It seemed only right that with the largely increased cost of living an increase of, say, 25 to 30 per cent. in wages should be made to the workmen, who undoubtedly felt the additional outlay needed for food and clothing. Several members took part in the discussion, and it was decided to allow the matters of wages and hours and general conditions of labour to remain in abeyance until the return of something like normal times.

BEDFORDSHIRE COUNTY COUNCIL  
PROPOSED SECONDARY SCHOOL



FIRST FLOOR PLAN



SECOND FLOOR PLAN

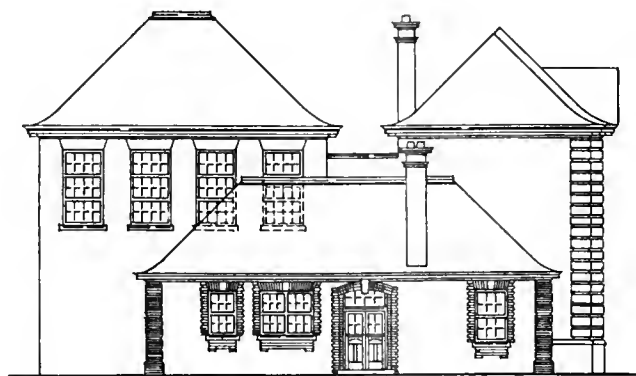
FIRST PREMIATED DESIGN, GIRLS' SECONDARY SCHOOL, LUTON, FOR THE BEDFORDSHIRE COUNTY COUNCIL.

Messrs. J. R. Brown and Son, Architects.

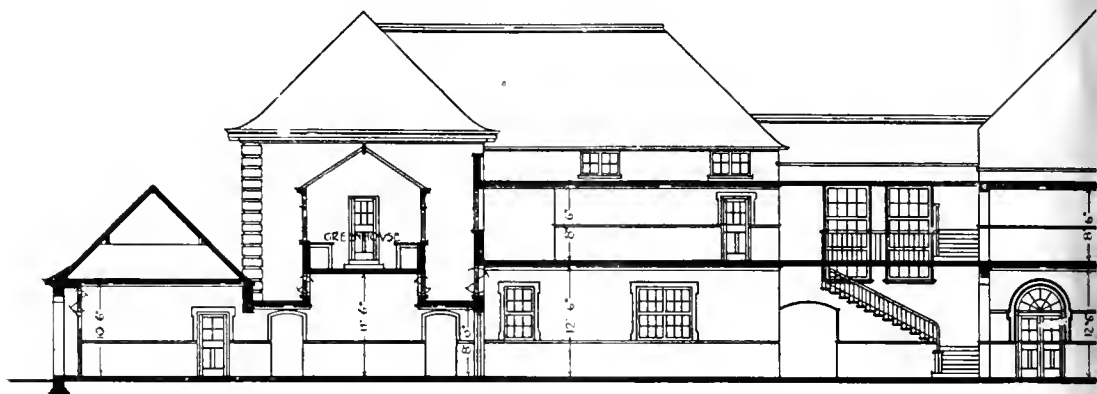




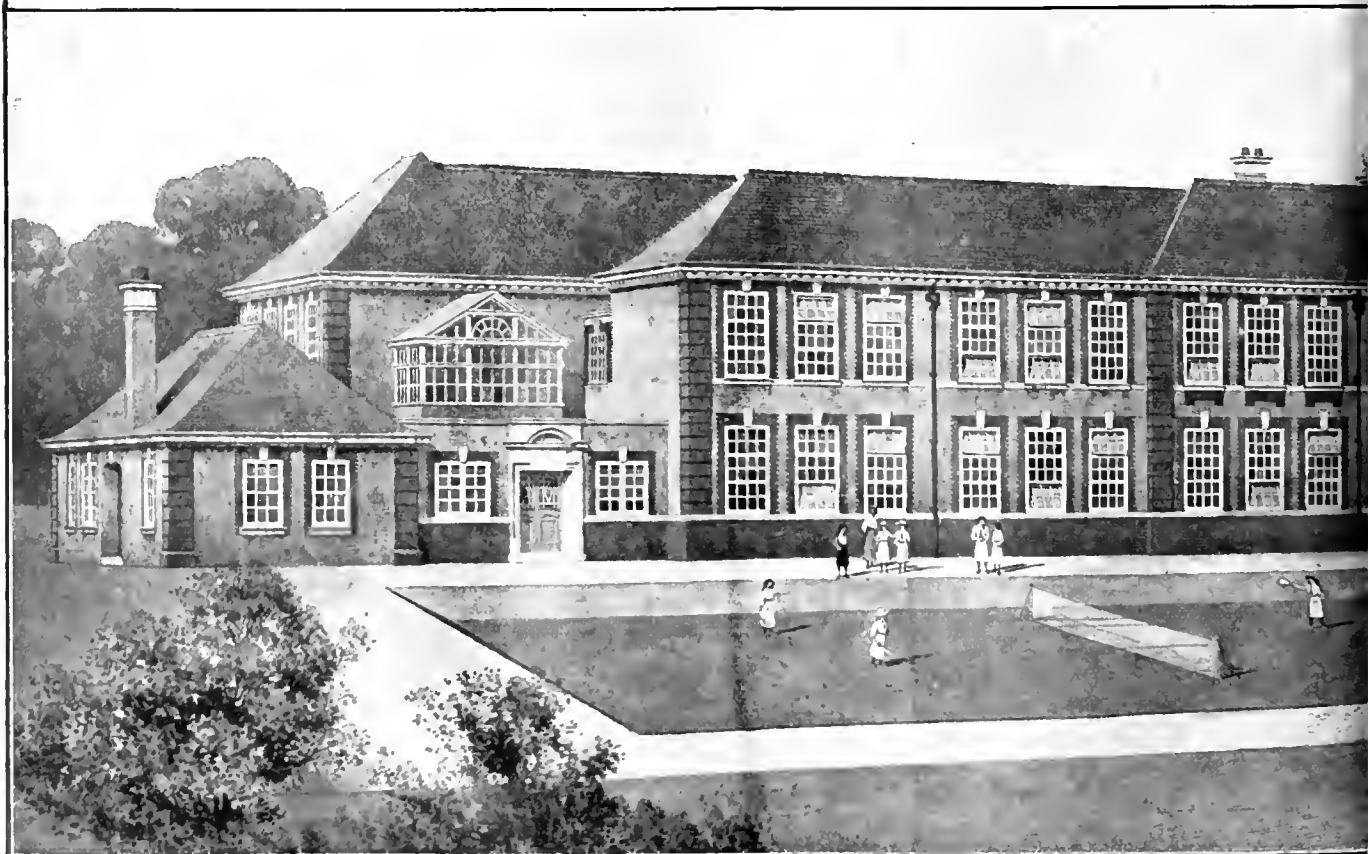
# BEDFORDSHIRE COUNTY COUNCIL PROP



WEST ELEVATION



LONGITUDINAL SECTION AA

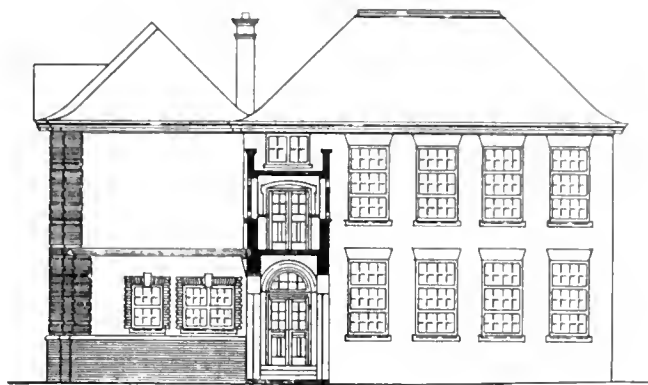


FIRST PREMIATED DESIGN, GIRLS' SECONDARY SCHOOL, LUTON, FOR

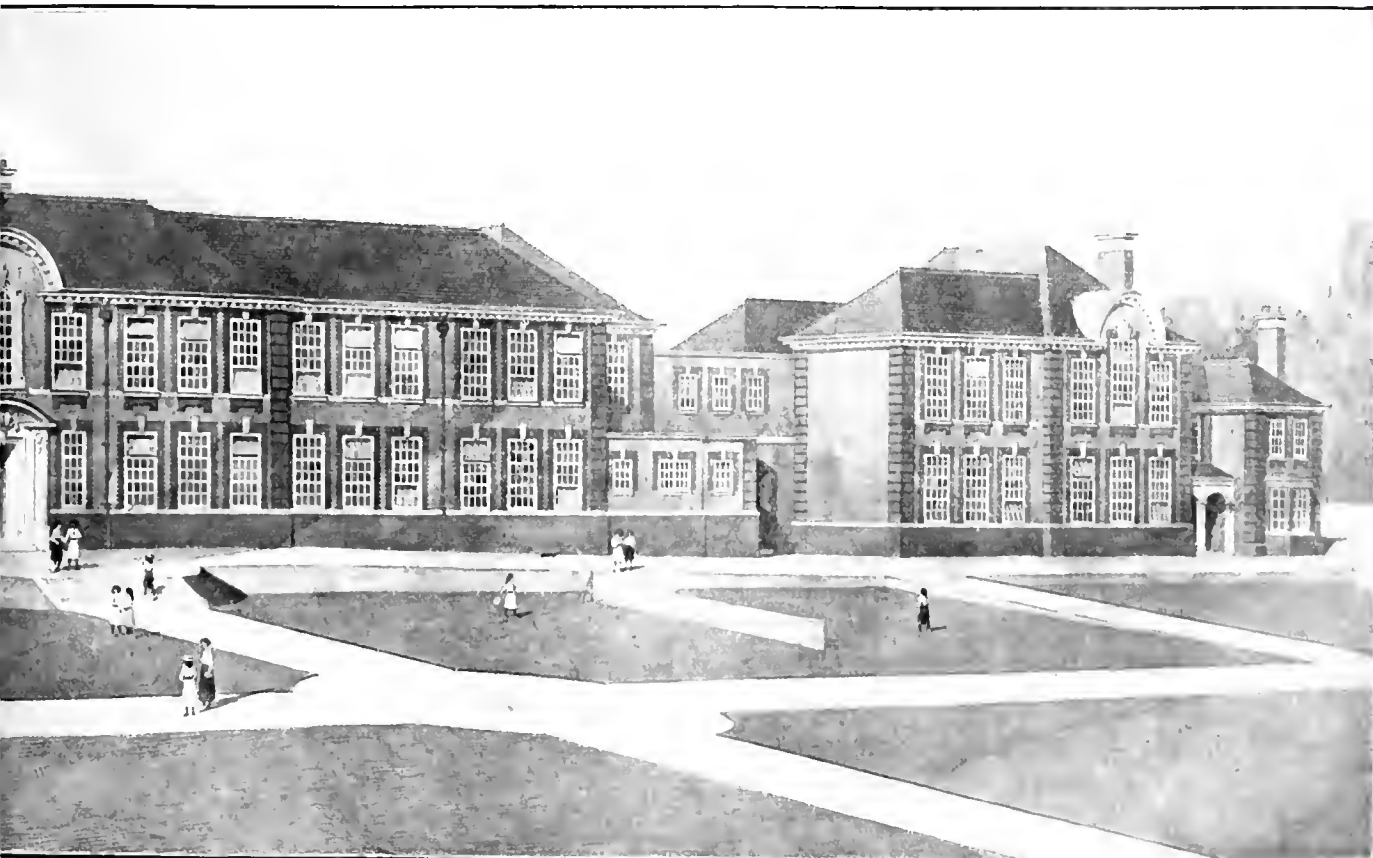
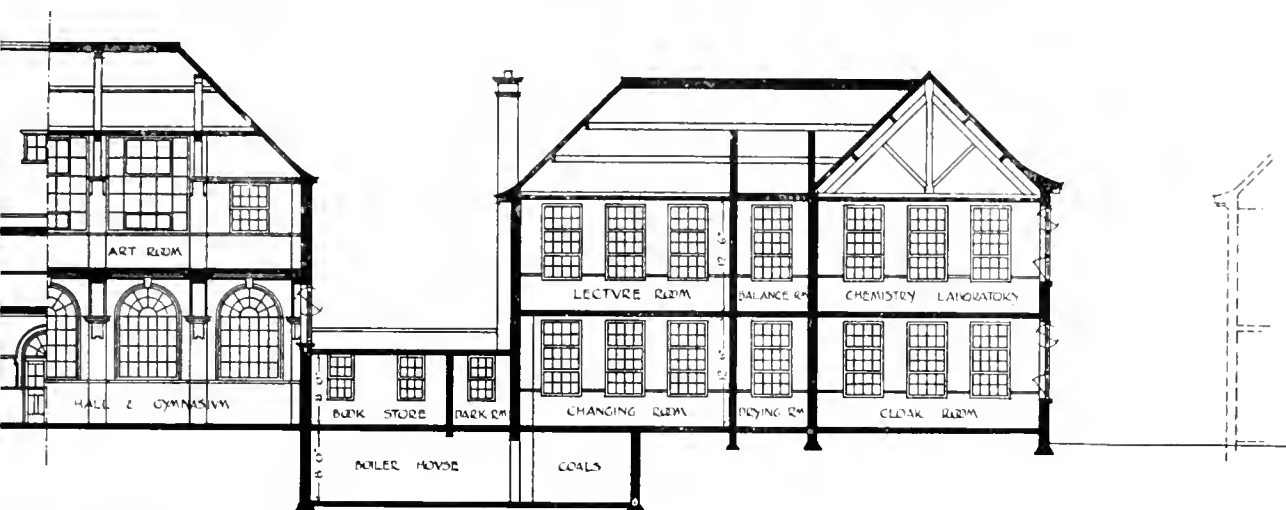
# SECONDARY SCHOOL FOR GIRLS LUTON



SECTION BB



EAST ELEVATION

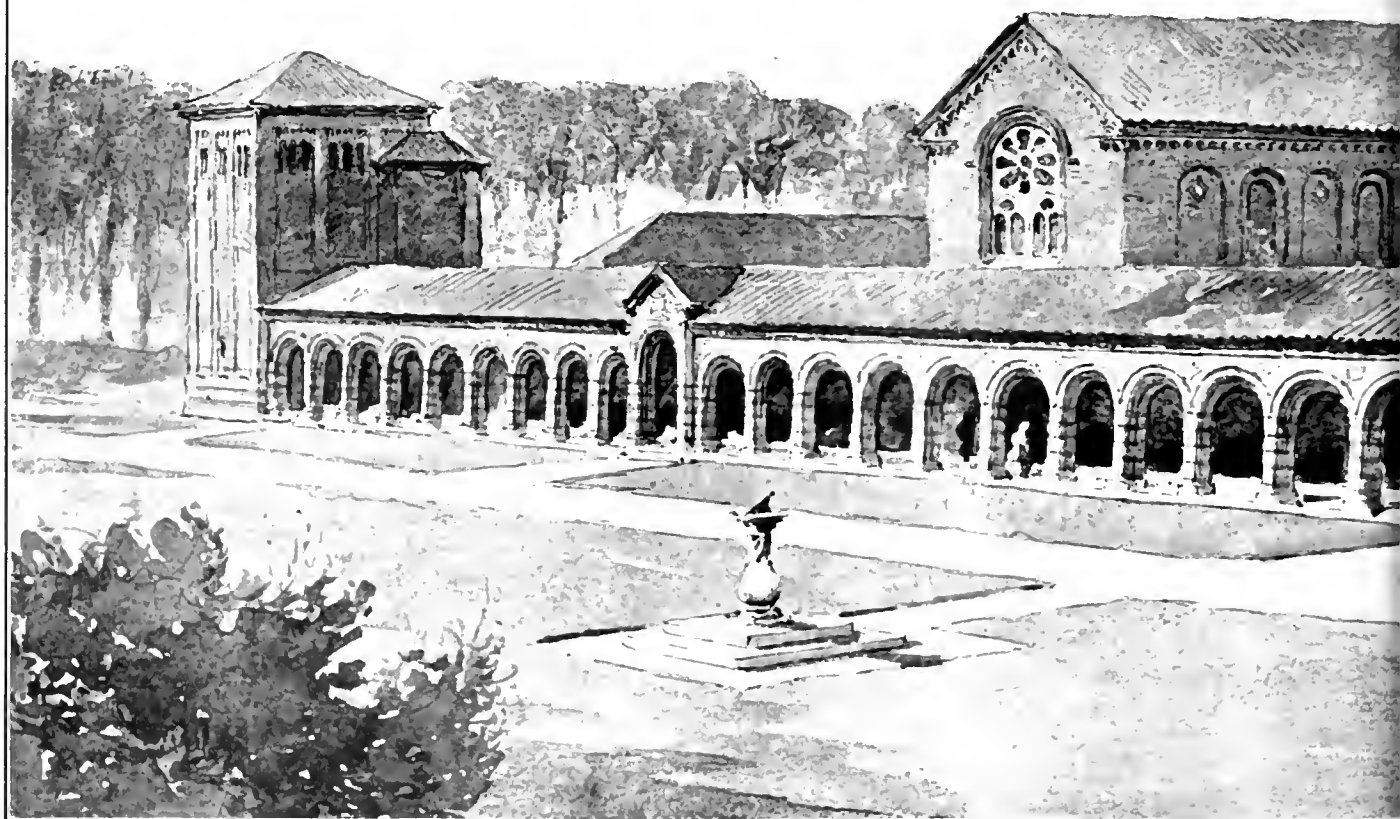






CREMATORIUM, GOLDERS GREEN  
SHOWING LATE ADDITIONS.

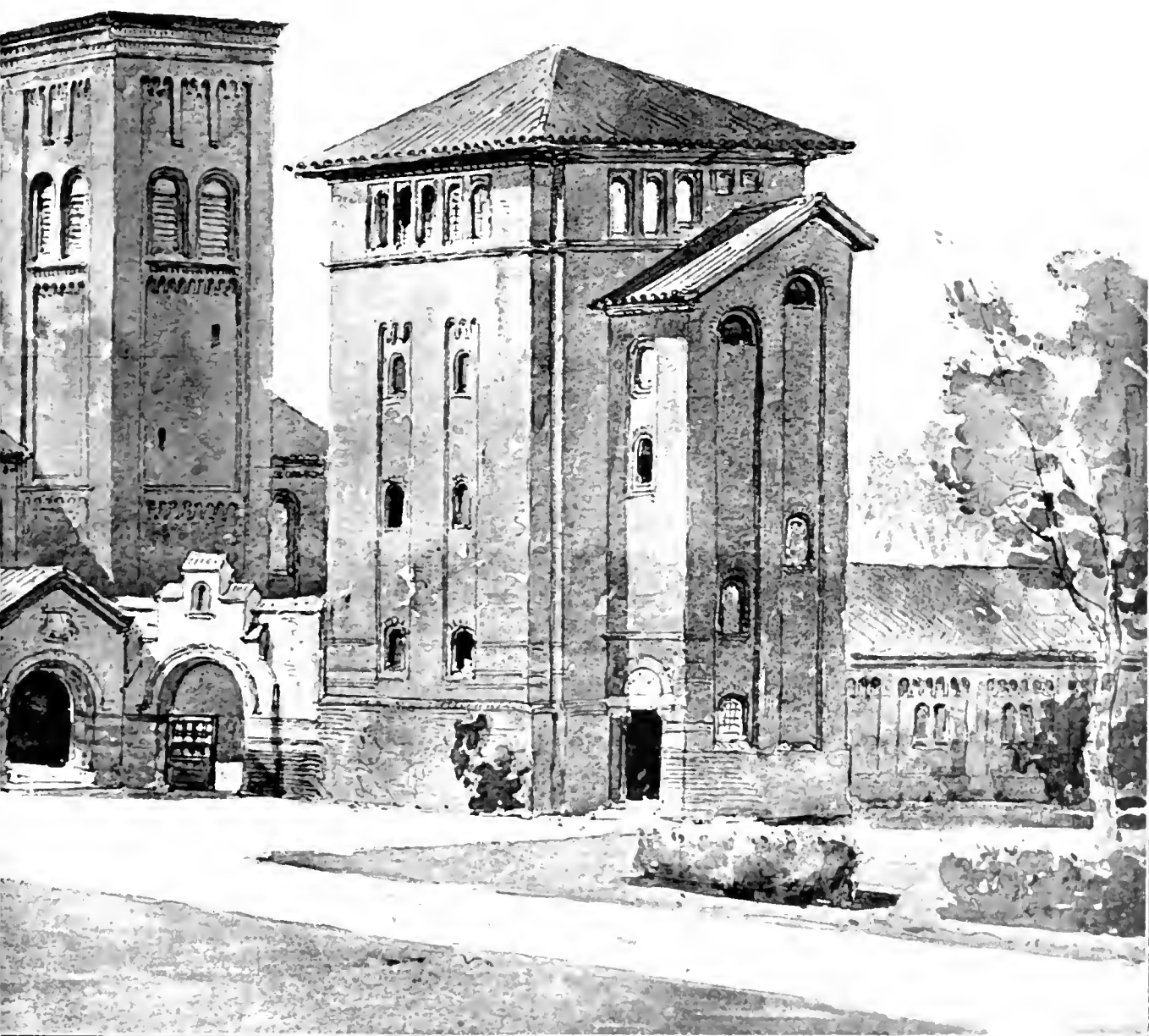
SIR ERNEST GEORGE A.R.A.  
& ALFRED YEATES  
ARCHITECTS.



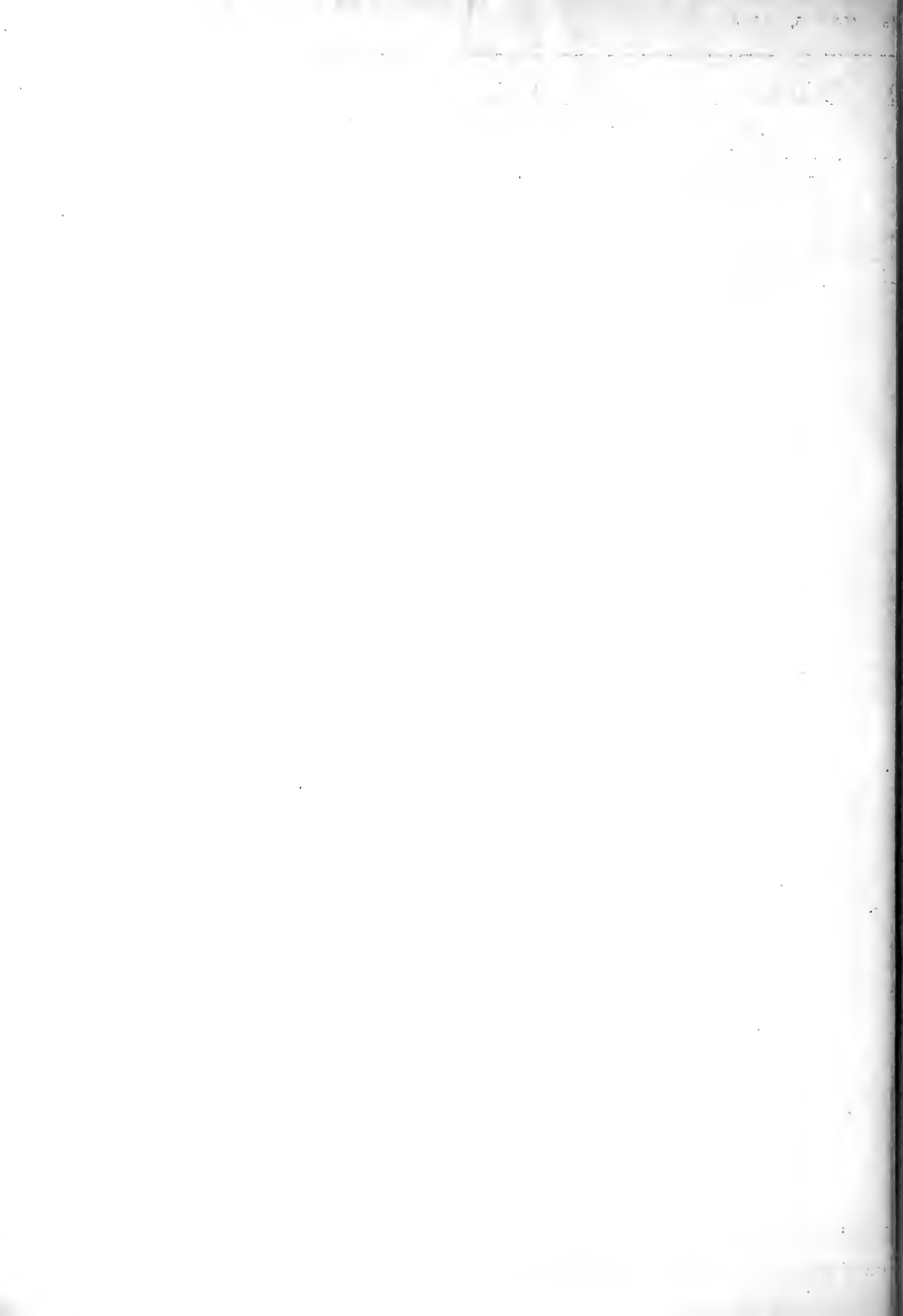
CREMATORIUM, GOLDERS GREEN, N., SHOWING LATE ADDITIONS



NEWS, MAY 3, 1916.

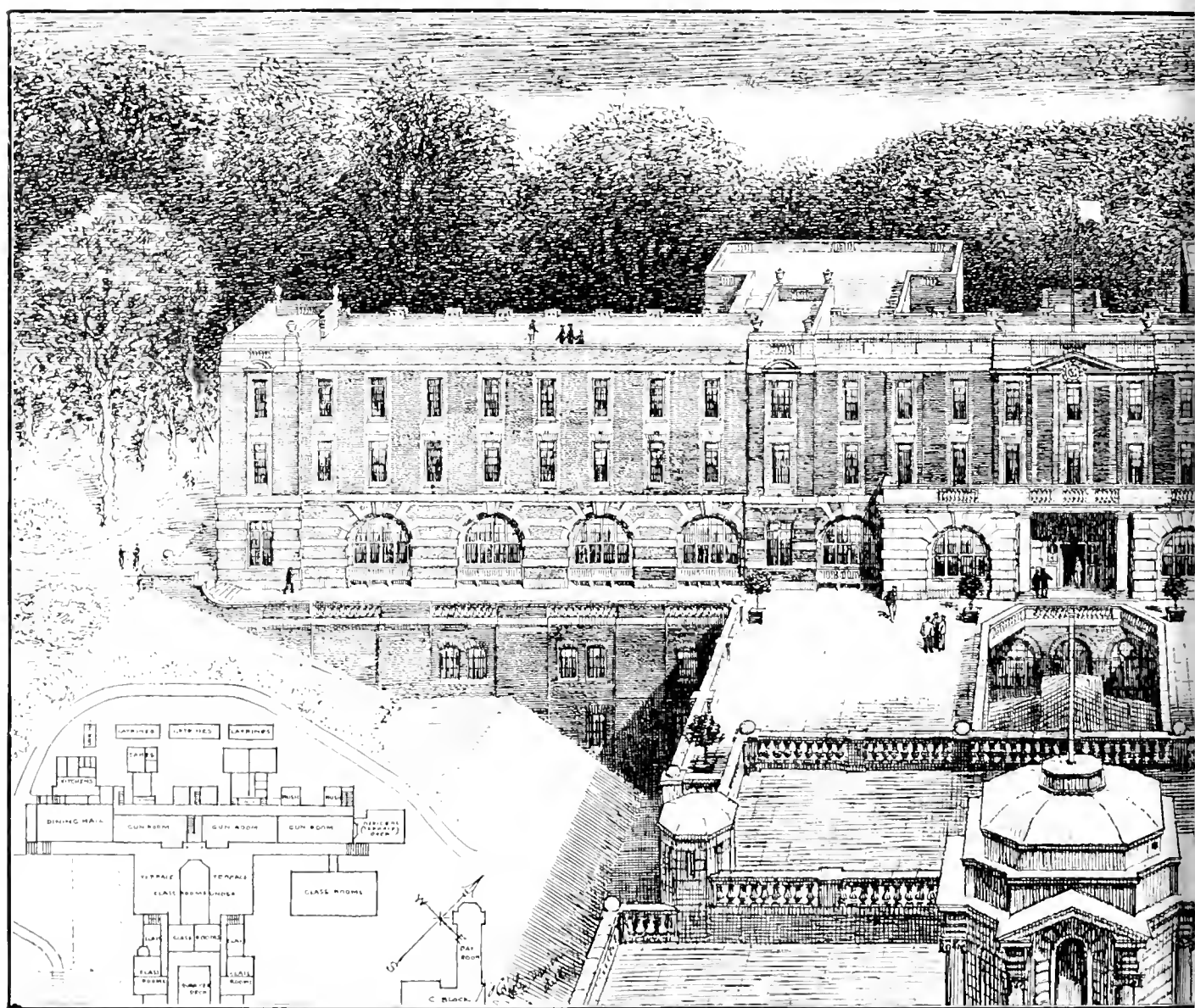


DES. BY SRS. SIR ERNEST GEORGE, A.R.A., and ALFRED YLAFI, F.R.I.B.A., Architects.



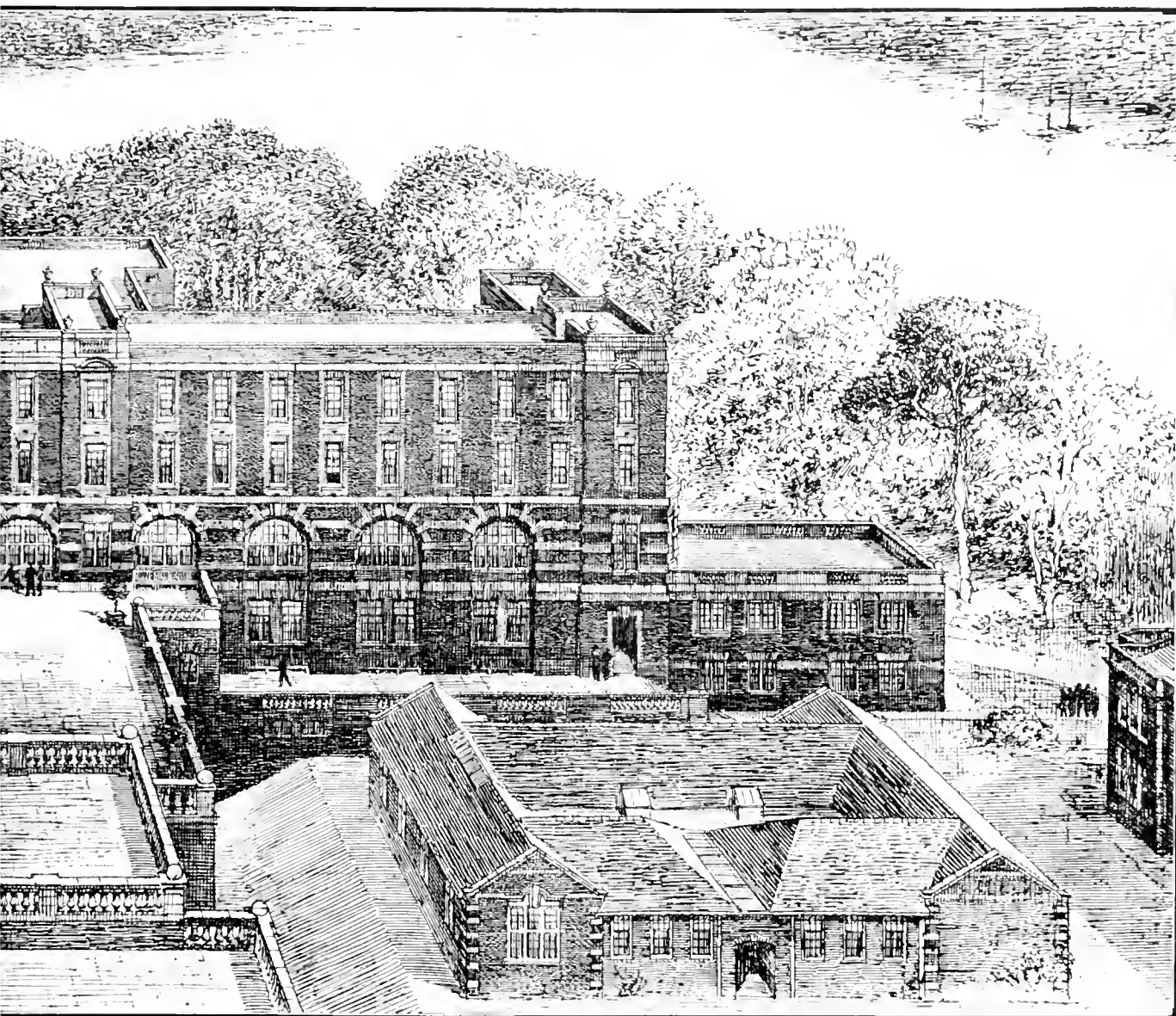


# THE BUILDING



EXTENSIONS TO THE ROYAL NAVAL COLLEGE, DARTMOUTH,

S, MAY 3, 1916.



ON.—Sir ASTON WEBB, K.C.V.O., C.B., R.A., F.S.A., F.R.I.B.A., Architect.







"THE COPPICE," WEYBRIDGE.—Messrs. CASTLE and WARREN, Architects.



HOUSE AT ST. GEORGE'S HILL, SURREY.—Messrs. CASTLE and WARREN, Architects.

## Corrente Calamo.

We are glad to see that the Council of the Institution of Municipal and County Engineers has adopted a report of the Board of Examiners recommending a thorough revision of the syllabus of the institution's examinations. We have not seen the syllabus, but a practical examination is in future to be insisted on, and if the details thereof are really such—as those of some other similar institutions are not—the value of the diploma will be considerably enhanced. Another wise provision is that all drawings submitted by candidates must in future be certified as actually their own work. It should also be insisted upon that they have not been similarly submitted elsewhere, for reasons which some of our own readers will call to mind. The first examination under the new syllabus will be held next April. The *viva voce* examination is to be retained, and there will be two papers on Engineering and Sanitation, one on Buildings, and one on Law. The institution and its members will benefit by the modifications about to be introduced, and its membership will be additionally appreciated by the public.

At the largely attended National Congress to consider home problems after the war recently held at Caxton House, Westminster, the subjoined resolution, proposed by Mr. A. W. Shelton, F.A.I., Nottingham, president of the Nottingham and District Property Owners and Ratepayers' Association, and seconded by Mr. S. Smethurst, J.P., of Oldham, past-president of the Federation of Master Builders, was carried with only very few dissentients:—"That this Congress is of opinion that the legislation promised by his Majesty's Government in 1913 and again in 1914 with regard to the Finance (1909-10) Act, 1910, should now be carried out, in order that an admitted obstacle to the building of working-class houses may be removed, and the provision of such houses stimulated at the close of the war." We are glad to hear it. We commented on this page in our issue of April 12 on the action Mr. Shelton has taken, and congratulate those who have endorsed it. Readers elsewhere who are interested should get the third edition of Mr. Shelton's pamphlet, "The People's Housing," issued by the Nottingham and District Property Owners' Association, Burton Buildings, Parliament Street, Nottingham.

As the representations of artists against the inclusion of art exhibitions under the amusements tax, made through the Imperial Arts League, have been ignored by the Chancellor of the Exchequer, a number of leading artists and others interested have emphasised their protest by urging that it was intended that educational work should be exempted from the incidence of the tax; that the educational value of art has been recognised by every civilised Government, including the British, by the establishment of State-supported art galleries, by grants in aid of the teaching of art, and by State aid given to various art exhibitions; that the duty falls more heavily on picture exhibitions than on any form of entertainment; that exhibitions promoted by societies of artists or municipal corporations are held on an entirely different basis from entertainments intended to be included under the entertainments' duty; that these exhibitions are practically the sole outlet to the artist for the disposal of his work; that as every public art exhibition is being

conducted at a loss at the present moment, the tax, instead of being paid out of profits, will have to be met by special levies either on municipal rates or on the individual members of artistic societies. How keenly art exhibitions are feeling the effects of the war already may be gauged by the admission receipts of the Walker Art Gallery, Liverpool, which averaged £3,000 annually during the thirty-three preceding years, but dropped to a little over £500 in 1914. This exhibition, the most important in the North of England, would have been given up had not a few patriotic citizens agreed to defray the expense. No class of the community has a larger proportion of its members on active service than artists, or has contributed more liberally to war charities, and none has been so severely affected by the incidence of the war. It is therefore a gross injustice that this patriotic and unfortunate body should be weighed down by a tax which cannot be liquidated out of income, but falls on their generally meagre and fast diminishing savings.

The question of the "loyers" or house rents in France seems to have been settled on a basis acceptable to the various political groups in the Chamber. Broadly, the law is that all occupiers of houses rented at £24 a year or under are to be exempt from payment of rent during the war and three months after the conclusion of peace. Those living in houses at higher rents may bring their claims for rebate, or even exemption should they show good cause, to a court of arbitration constituted by two landlords, two tenants, and a professional judge. As for the landlord, if he can give proof that his income is not in excess of £120 a year, he may be empowered to borrow money from the Government on mortgage, free of interest and charges, up to 50 per cent. of the total of rents owing to him. Landlords with an income of £240 can do the same, but must pay a fixed rate of interest, together with charges. Landlords with over £240 a year must put up with their losses. The arrangement is hardly calculated to encourage the French to invest their savings in brick and mortar.

The absurd proposal known as the "Daylight Saving" scheme is, it appears, receiving the consideration of the Government, amid its other somewhat erratic present excursions into the barren field of abortive legislation. The one present inducement seems to be the itch to follow Germany, where the clocks were all put forward an hour at 11 p.m. last Sunday, and where they will be duly put back again at 1 a.m. on October 1. The French Chamber of Deputies has adopted a similar scheme, but we have little fear that the Senate will pass it, after the critical survey thereof presented on April 10 to the Paris Academy of Sciences by M. Ch. Lallemand. It will be remembered that in 1909 a Select Committee of the House of Commons reported against the scheme, and it was again rejected in 1911. It is a fact that not a single scientific society or recognised body of expert opinion has given its adhesion to the idea, which is paradoxical in essence and will prove abortive if it is ever brought into operation. Perhaps the most astonishing of all the pleas of its advocates is that now being advanced that saving in fuel used for lighting and heating would be effected by the scheme. As a matter of fact, for several weeks of the period included more fuel and more light would be consumed by the hundreds of thousands of workmen who now begin work at 6 a.m.,

and who would then have to rise at 4 a.m. to start work at 5 a.m.

Really the scheme seems one intended to get an additional hour's work out of most of us. At present, especially in the agricultural districts and in the building and engineering trades, work is regulated, not by the clock, but by the hours of daylight. In other industries where artificial illumination is easy, working hours will always be regulated by necessity, and not by the sun. In all these trades the workers have to take their recreation when they can get it. Those who are to be forced to get to work—in additional darkness during September—at 5 a.m. instead of 6 a.m. are little likely to appreciate the additional hour of daylight vouchsafed at the other end of the day to the comparatively few who are able to start work at 9 a.m. or 10 a.m. They would have to work a quarter of a day extra in additional darkness while the rest were sleeping. No one attempts at present to adopt "Daylight Saving" in Scotland, though north of Edinburgh there is little real darkness for a couple of months of summer. Moreover the duration of daylight in the third week of April is quite different from that of the third week in September. The corresponding periods as regards length of daylight are the third week of April and the third week of August, not the third week of September.

It is not our province to emphasise the objections urged by astronomers and those responsible for the application of the results of their labours on behalf of navigation. But it is certain that Greenwich mean time, on which practically all the civilised nations base their reckoning, would still be used for all phenomena recorded in calendars, tidal tables, time signals, etc. The ensuing confusion would be ludicrous! Faddists may conceivably persuade ignorant legislators to follow their lead, but the general public thus bull-dozed would speedily discover the futility of the many inconveniences resulting, and resent any attempt to make the change compulsory, and if ever "passive resistance" was justified it would be in regard to compulsion in this matter.

An interesting relic has been added to the collection in the Exhibition Hall of Messrs. Robert Ingham, Clark and Co., Limited, in the form of a slab of the last mulberry tree razed. This tree was one of the three which originally existed on the works premises, and have, one by one, been removed to make way for things more useful, if not so ornamental. The history of these mulberry trees is of some interest. In 1750, subsequent to the revocation of the Edict of Nantes, many of the Huguenots of France had settled in this country and instituted a silk industry. They were the originators of the Spitalfields silk weavers, and a great many came into the district of West Ham and neighbourhood. Here they bred and reared the silkworm, planting the mulberry trees, the leaves of which are its chief food. Only a few years ago mulberry trees were common in all gardens of any size in this district, but the exigencies of modern commerce have practically demanded their extinction.

Captain Roy Molyneux Quilter, Bedfordshire Regiment, second son of the late Mr. John Salmon Quilter, F.R.I.B.A., President Architectural Association 1875-6, and of Mrs. Quilter, Kirkstall Road, Streatham Hill, and brother of Mr. Cecil Molyneux Quilter, Lic.R.I.B.A., was killed in action on April 11.

## Our Illustrations.

### EXTENSIONS TO THE ROYAL NAVAL COLLEGE, DARTMOUTH.

This double-page is reproduced from Sir Aston Webb's chief work illustrated this year at the Royal Academy, and a reference to the subject will be found in our review of Architecture in the present exhibition.

### RECENT ADDITIONS TO THE CREMATORIUM, GOLDER'S GREEN.

The one architectural drawing in the Royal Academy by Messrs. Ernest George A.R.A., and Yeates shows the Crematorium at Golder's Green with its late additions. Of these, the near square tower has been erected as a second columbarium; it provides three stories of niches for urns; internally its galleries are formed by arches in Hopton Wood stone. The cloister or arcade seen in the drawing is a recent addition, giving an ambulatory, and connecting the chapel with the further columbarium, while providing protected wall space for tablets and memorials. Sir Ernest George is found also in the "Black and White" room with two recent etchings of Italian coast subjects. These are typical of his mature skill as an etcher and add much to the interest of the small gallery in which they are hung. A reference will be found in our article elsewhere, on the Royal Academy Architecture, to the Crematorium buildings.

### LUTON SECONDARY SCHOOL FOR GIRLS: SELECTED DESIGN.

The buildings will occupy an elevated position on the site, the ground on the south and west sides to be laid out as tennis courts and hockey ground. The space on either side of approach from the Marlborough Road will be reserved for additional tennis courts if required. The arrangement of plan, with a wide central corridor on each floor giving access to the several rooms, was adopted with a view to simplicity of design and efficiency in the general supervision of the school. The assembly hall, which is also to be used as a gymnasium, is placed within easy reach of all entrances, and in addition to the side windows has a large window at each end above level of adjoining flats, thus securing good lighting and ventilation. The classrooms are placed on the south side of the building, and, with the exception of two on the ground floor, have direct cross ventilation. The floors of corridors, lavatories, cloak and changing rooms will have terrazzo pavings, and the other rooms composition or wood-block floors. The rooms generally will have plastered walls with terrazzo dadoes. The elevations will be faced with local "grey" bricks with red brick dressings, and the roofs covered with tiles. Low-pressure hot water with radiators is the proposed system of heating. Messrs. J. R. Brown and Son, of Luton, are the architects selected in the recent limited competition, when several experts in school-planning submitted designs. We are enabled to give a view, sections, elevations, and plans, the design not having been published before to-day.

### HOUSE AT ST. GEORGE'S HILL, SURREY.

This house is to be executed in oak half-timbering and grey bricks, with dark hand-made tiles for the roofs. The chimneys are to be specially designed and executed in brick and flint. Messrs. Castle and Warren are the architects.

### "THE COPPICE," WEYBRIDGE.

This house has been lately completed, and stands on a site overlooking a very pretty view. The exterior has been built in mottled bricks with oaken half-timbering and roughly trowelled smooth-cast; rough elm boarding is introduced occasionally, and many old materials have been used to characterise the simplicity of the work. The interior is treated in character. The hall is half-timbered in oak throughout, and the dining-room panelled in oak. The gardens were laid out by the architects, Messrs. Castle and Warren. The contractor was Mr. W. G. Tarrant, of Byfleet, Surrey.

## OBITUARY.

It is with great regret we have to announce the death of Mr. George Thomas Hine, of 35, Parliament Street, Westminster, who died on April 25 at Fowey, Cornwall, in his seventy-fifth year. Mr. Hine was the eldest son of the late Thomas Chambers Hine, F.R.S.A., of Nottingham, with whom he was in partnership until 1891. He had been a Fellow of the Institute since 1877, and for some years a member of the council. After a varied practice with his father he took up the special study of asylum construction. In 1877 he designed the Nottingham Borough Asylum, and in 1887, having won in competition the Claybury Asylum for the L.C.C., he removed to London and established himself as a specialist in asylum architecture. In 1901 he read a paper before the Institute which became the standard publication on the subject of asylums. He was later appointed Consulting Architect to H.M. Commissioners in Lunacy for England, which office he held for some twenty years. He designed and completed four of the large asylums for the L.C.C., each for two thousand patients, at a cost of about a third of a million apiece, as well as a number of county and borough asylums throughout the country, such as East Sussex, Worcester, Sunderland, Hertfordshire, Kesteven, Surrey, Gateshead, Hampshire, and Swansea, together with substantial additions to the asylums at Dorchester, Leicester, Nottingham, Moulsoford, Wells, Cotford, St. Albans, Devizes, etc. He was a fellow of the Surveyors' Institute and an hon. member of the Medico-psychological Society, and a member of other learned societies. In 1909 he took into partnership Mr. H. Carter Pegg, who had been associated with him for over thirty years.

We regret to learn that Mr. A. Marshall Mackenzie, LL.D., A.R.S.A., Member of Council of the Royal Institute of British Architects, of Union Street, Aberdeen, has sustained a severe bereavement, intimation having reached him on Thursday that his youngest son, Captain Gilbert Marshall Mackenzie, Seaforth Highlanders, had been killed in action. Captain Mackenzie was educated at Charterhouse and Cambridge, and was in practice at 1, Victoria Street, Westminster, with his elder brother, Mr. Alexander G. R. Mackenzie, F.R.I.B.A., the newly-elected President of the Architectural Association, who, as one of those who took part in the gallant charge of the London Scottish at the battle of Loos, was severely wounded and subsequently sustained amputation of a leg.

Mr. William Young, a Glasgow landscape artist, died suddenly on Wednesday week, aged seventy-one years. He was one of the founders of the Glasgow Art Club and of the Scottish Artists' Benevolent Association, of which he was for long honorary treasurer. He was also one of the first members of the Royal Scottish Society of Painters in Water-Colours again occupying the position of treasurer—and he was a vice-president of the Royal Glasgow Institute of the Fine Arts.

Mr. John Jeffreys, M.I.M.E., heating and ventilating engineer, died, after a short illness, on Good Friday, at "Kinburn," Egham Hill, Surrey, in his sixty-fifth year. Mr. Jeffreys was apprenticed to the late Mr. Henry Fuller, architect and mill engineer, of Manchester, from 1867 to 1873, and for four years subsequently was with Messrs. Matthew T. Shaw and Co., constructional engineers, of London, originally as a draughtsman, and afterwards as works inspector. After leaving this firm he became assistant manager to Messrs. Rosser and Russell, heating engineers, acting in this capacity until 1881, when he commenced business for himself as a specialist in heating and ventilation. From this time he was responsible for the design and installation of heating and ventilating plants in very many public and private buildings, including the Admiralty buildings, the Prudential Insurance offices in Holborn, Kensington Palace, H.M. Record Office, the Government laboratories in Clement's Inn, the Surveyors' Institution, etc.

By the death of Mr. William E. Chivers, head of the firm of W. E. Chivers and Sons, Government contractors, Devizes has lost one of its leading and most respected citizens. The deceased, who lived at Lyndale, London Road, Devizes, had been in ill-health for some years. On Sunday evening he went for a walk up the road, and on returning he collapsed and died immediately. The deceased leaves a widow, three sons, and one daughter. Mr. Chivers commenced work in Devizes as a journeyman carpenter. He subsequently started in business in a small way, but his sons developed the concern, and, having secured large Government contracts, they soon increased their undertaking, and have been employing as many as 1,000 men. Mr. Chivers was about sixty years of age. At the funeral service on Wednesday the War Office was represented by Major Foster and Lieut. Rowbotham, and over 200 workmen employed at the Devizes branch of the firm attended, as well as the office staff.

The death occurred at the residence of his son, J. Craigcrook Gardens, Blackhall, Midlothian, on Tuesday in last week, of Mr. Andrew Cowan Telfer, an ex-magistrate of the City of Edinburgh, and the first artisan representative returned to the town council. Mr. Telfer, who was seventy-one years of age, was born at Burns, Lethen, in the parish of Southdean. He was apprenticed to a joiner at the village of Chesters, and on the completion of his apprenticeship went to Edinburgh in 1867. He was one of the representatives of the joiners on the Trades Council, and held the post of chairman of that body for three years, and from that time until he retired in 1906 he never had to contest his seat. He continued at his trade until about twenty years ago, when he became a house agent under the firm name of A. C. Telfer and Son.

Mr. George Stevenson, builder, of Balby Road, Doncaster, whose death was announced on Thursday, at the age of eighty-one, was the oldest Wesleyan Methodist in Doncaster. He had been superintendent of the girls' Sunday-school for thirty-five years.

The partnership hitherto subsisting between G. B. Williams and G. V. Evans, architects, surveyors, and estate agents, under the style of A. O. Evans, Williams, and Evans, at Pontypridd, Glamorgan, has been dissolved, so far as concerns G. B. Williams.

One of the makers of Eastbourne, having been a prominent builder when the town began to grow, Mr. John Harding, of 12, Camden Road, was buried on Tuesday in last week. He was eighty-seven years of age, and sat on the Town Council for upwards of ten years from 1883, when the town became a borough.

A stained glass east window representing the Nativity has been placed in the parish church at Chawton, Hants, to the memory of Mr. Montagu George Knight, squire of the parish. A west window in the north aisle (representing St. George and the Dragon) commemorates the death on active service of Sir Evelyn Ridley Bradford, Bart.

The first casualty has occurred among the twenty-two members of the Leeds Corporation Sewerage Engineer's staff who have joined the Army. News has been received of the death of Lieutenant Percy Coates, who was a native of Sheffield; after serving his articles with the city engineer there, Mr. C. F. Wike, he went to Leeds in 1913 as an engineering assistant. He enlisted as a gunner in the Honourable Artillery Company in March of last year, and in November received a commission in the Royal Engineers. He was thirty-one years of age.

The Chester City Council resolved on Wednesday to inform the Local Government Board that unless some financial assistance was forthcoming from the Ministry of Munitions, or from some other Government department, it was considered that the council could not proceed at the present time with an important housing scheme already decided upon. It appeared that the council had applied to the Board for a loan for the construction of the sewers and the streets, but the Board replied suggesting that the council should proceed at once to obtain tenders for the erection of the proposed houses and apply for the required loan.

## Building Intelligence.

**DUDLEY.**—A committee of the Dudley Town Council has issued a report in reference to the corporation scheme for the erection of 300 houses. They had accepted tenders by the following contractors—Mr. William Roe, of Wolverhampton, for the erection of thirty houses; Mr. Thos. Higgs, of Wolverhampton, fifty-four houses; Messrs. Jenkinson and Davies, of Rhondda, forty houses; Dudley Amalgamated Builders, of Dudley, nine houses; Messrs. Rogers and Sons, of Cardiff, eighty-six houses; Messrs. Lewis and Taplin, of Birmingham, for the construction of new roads and sewers on the Brewery Fields estate (the site of the scheme), and for the widening of Bunns Lane and St. John's Road, and the construction of new sewers therein. The time limits attached to the contracts range from two to five months. The total contract prices amounted to £81,045 for the houses and £7,127 for the roads and sewers, compared with the following estimates—Houses, £84,471; roads and sewers, £9,624. The figures for the houses are exclusive of £3,500 for extra foundations and contingencies.

**TORONTO.**—Satisfactory progress is being made on the new Union Railway Station, Toronto. The excavations for the foundations have been completed, and the concrete caissons and piers have been entirely installed. Machine-rooms, furnace-rooms, and boiler-rooms have been excavated, and the east and west wings are ready for steel. The centre section is completed and ready for steel. The foundation work was done by Peter Lyall and Sons, the general contractors. All foundations were carried down to bedrock; there are no clay-bearing foundations in the whole plan. In excavating, water was encountered in practically all the foundations, due to the proximity of the site to the lake. These were kept dry by the use of pumps and siphons. Service tracks for superstructure erection are already laid, and some of the structural steel and the erection derricks are already on the ground. The erection of the structural steel was begun a fortnight ago.

### TRADE NOTES.

Boyle's latest patent "Air-Pump" ventilators have been adopted at St. Mary's Hospital, Paddington, W.

The Ancients Hospital, Manchester, is being supplied with Shorland's double-fronted warm-air ventilating patent Manchester hospital stoves, by Messrs. E. H. Shorland and Brother, Ltd., of Farnworth, Manchester.

The test of time is safer than the test of new methods under a "wait and see" policy. We learn that a 5,000-gallon tank built at Cerne, Dorset, four years ago with Pulloed cement concrete is still perfectly watertight.

Messrs. Knight and Partners have extended the time for entries for their next auction sale to May 6. Full particulars will be found in our advertisement columns, and the sale affords an excellent opportunity of disposing of surplus machinery.

Messrs. Robt. Trench Clark and Co., Ltd., have secured the whole of the French Government's contract for 10,000 litres (2,200 gallons) of varnish for the Aviation Department. Henri Farman, one of the largest aeroplane builders in the world, has also passed the French firm a contract for 12,000 litres (2,450 gallons), to be taken over six months. There are large stocks of this particular varnish at West Ham, which are quite ready for sale.

It has been decided to set in Rugby Chapel a memorial of Rupert Brooke. It will take the form of a portrait medallion in marble, based on a photograph by Sherriell Schell, which appears as the frontispiece of the 1914 volume of poems. The medallion will be the work of Professor J. Hayard Thomas.

The Straits Settlements Government is calling for tenders for the steel and iron work and labour required for the manufacture in Great Britain or America and the erection in Province Wellesley of a steel bridge over the Muda River, Province Wellesley, comprising a centre span of 215 ft. and two side spans of 110 ft. 9 in. each, and 20 ft. in width between the centres of the main girders. Tenders must be sent in before August 14 next.

### COMPETITIONS.

**YORK.**—Professor Lealie P. Abercrombie, M.A., A.R.I.B.A., of Liverpool University, the adjudicator in the competitive schemes submitted for the town-planning of the suburbs of York, recommends that the three premiums be paid as follows:—First, Mr. R. Dunn, of Crawley, Sussex; second, Mr. M. A. Piercey, of Warrington; third, Messrs. Noel Stephen and H. O. Burroughs, of Dale Street, Liverpool. He also recommends a scheme submitted by Messrs. Allen, Thompson and Thorpe, of London.

### PROFESSIONAL AND TRADE SOCIETIES.

**ARCHITECTURAL ASSOCIATION.**—An ordinary meeting of the Architectural Association was held at No. 37, Great Smith Street, Westminster, S.W., on Monday, May 1. Mr. H. Austen Hall, F.R.I.B.A., the President, in the chair. The President proposed a vote of sympathy with the relatives of members of the Association who have fallen in the war since the last meeting. Messrs. J. C. Bucknill, Adrian T. Hardman, and G. M. Mackenzie. The motion was carried in silence. The following gentlemen were elected members: Mr. Arthur Davis, and Mr. E. J. Armstrong (19th Batt. Middlesex Regt.). The President announced the following nominations of candidates for the House List for session 1916-17, and as no further nominations were forthcoming, they were declared elected: president, A. G. R. Mackenzie; vice-presidents, H. M. Fletcher and Stanley Hamp; hon. treasurer, E. Winton Newman; hon. editor *J. I. Journal*, F. C. Eden; hon. librarian, V. T. Hodgson; hon. secretary, Ralph Knott; ordinary members of council: (past president, H. Austen Hall), Detmar Blow, Alfred Cox, H. Farquharson, E. Stanley Hall, E. Brantwood Maule, W. G. Newton, W. J. Palmer-Jones, J. Alan Slater, T. Tyrwhitt, and Philip E. Webb. On the motion of the president a vote of thanks was passed to the retiring members of the council, Messrs. C. C. Brewer and Maurice E. Webb.

**BRISTOL SOCIETY OF ANTIQUARIES.**—The fourteenth annual meeting of this society was held on Tuesday evening at Stuckey's Café, Wine Street, Bristol, Mr. J. T. Francombe, president, in the chair. Mr. W. F. Kumer, hon. secretary and treasurer, presented a very satisfactory report of the year's work. The financial report showed the society to be in a flourishing condition. Mr. Herbert Bolton, director of the Bristol Museum, delivered a lecture on "Primitive Man and His Tools." He assumed that the study of the early history of man in our own country came within the interests of the society, and he pointed out that during the last fifty years a mass of evidence had been accumulated in proof of the fact that the people who were found in possession of this country by the Romans in 54 B.C. were after all but the followers of older races having a still more primitive culture and a ruder life. These earlier people had no written history, nor, as far as we know, did they come into contact with the then living nations which possessed a written history. Mr. Bolton maintained that the evidence of these once unknown British peoples rested entirely upon the materials they had left behind them, or upon relics of their habitations and art. He then proceeded to trace the evidences, and illustrated his remarks by means of a series of lantern pictures showing the ancient types of men and the general character of their implements.

**MANCHESTER SOCIETY OF ARCHITECTS.**—The fifty-second annual meeting of this incorporated society was held in Canada Chambers, Spring Gardens, Manchester, on the 26th ult. The annual report of the council stated that the present aggregate membership is 272, viz., 120 Fellows, 109 Associates, and 43 students, as against a membership of 271 a year previously. During the twelve months two Fellows, three Associates, and seven students have been elected, and during the year one Fellow, one Associate, and two students had resigned. The deaths included Mr. John Ely, hon. secretary 1883-91 and president 1896-7 and 1897-8; the Right Hon. J. F. Cheetham, hon. vice-president; two Fellows and two Associates, in addition to Mr. George Barlow,

Associate, and Mr. C. R. Edwards, student, who had been killed in action. A deputation from the society had laid their views before a committee of the Manchester City Council, who were inquiring into the whole matter of official architecture; no official reply had yet been received from the committee, who received the members very sympathetically. The late Mr. Thomas Groom Barker, Fellow, who died last year, had left the whole of his residuary estate to the interests of architecture, subject to a life interest, one moiety being bequeathed to the society and the other moiety towards the endowment of the Chair of Architecture in Victoria University. Six papers were read during the session, but the annual dinner was not held. The members who had joined H.M. Forces included the names of nine Fellows, forty Associates, and thirty students—a total of seventy-nine. Members had been informed that any cases of great hardship due to loss of work owing to the war should be notified to the Professional Classes Relief Committee. Several architects and surveyors in the district made application for work, and a scheme for a civic survey has been inaugurated, with Professor Abercrombie and Mr. Isaac Taylor as co-directors. The committee has been able to find work for twelve Manchester practitioners, and a comprehensive regional survey is being made by them of the South-East Lancashire district, and of the surroundings of Liverpool. The council has arranged for the clubroom of the society to be used as the drawing office for the survey. The report of the Education in Architecture Committee stated that little work had been done, as almost all the eligible members were on active service. The report and accounts having been approved and adopted, the following officers and members of council were elected:—President, John B. Cass, F.R.I.B.A.; vice-presidents, A. W. Hennings, A.R.I.B.A., and Edward Hewitt, F.R.I.B.A.; hon. secretary, Isaac Taylor, F.R.I.B.A.; assistant hon. secretary, J. T. Halliday, A.R.I.B.A.; members of council, Messrs. F. B. Dunkerley, C. E. Eleock, H. Q. Farmer, W. C. Hardisty, T. H. Hill, J. A. M. Hunter, P. D. Lodge, A. J. Murgatroyd, Paul Ogden, J. H. Sellers, J. H. Woodhouse, and P. S. Worthington.

**ROADS IMPROVEMENT ASSOCIATION.**—Colonel R. E. Crompton presided on Thursday at the annual meeting of the Roads Improvement Association. The report of the council stated that, owing to the restriction of road expenditure, the heavy military traffic, and the unfavourable weather conditions, the roads throughout the country had deteriorated to a serious extent, while no systematic or extensive improvement could at present be expected. Unfortunately, the Government had found it necessary to appropriate the income of the Road Board for war purposes. The whole circumstances were being closely watched, and at a suitable opportunity steps would be taken to impress upon the Government the need to restore the whole of the diverted income of the Road Board, as State assistance for the roads upon a generous scale would be imperative in the future. It was further stated that conferences had been held with chief constables upon various points in connection with the reduced lighting regulations. An intimation had been received from the Home Office to the effect that the question as to requiring men driving animals on the highway at night to carry hand-lamps was under consideration.

The Gorsedd Garden, Cathays Park, Cardiff, has been selected as the site for the memorial statue to the late Lord Ninian Crichton-Stuart, M.P., who was killed in action.

A stained-glass window in the side-chapel of the Bognor Parish Church has been dedicated by the Bishop of Chichester. The memorial, in honour of Captain Mervyn Keats Sandys, 2nd Battalion, York and Lancaster Regiment, is a design of three figures, the central one that of Christus Consolatus. On the left side is the figure of Courage, and on the right hand appears the figure of Victory in armour, holding a laurel crown. At the base are the arms of the Sandys family.



## Our Office Table.

A conference on housing promoted by Labour and other bodies was held at Dundee on Saturday afternoon and evening. Mr. E. G. Carr, Dundee, president of the Labour Representation Committee, presided over an attendance of fifty delegates. The chief speaker was Councillor John Wheatley, Glasgow, who said we had in existence to-day houses that were provided not by people educated up to the standard of modern times, but by a generation who knew nothing of modern ideals. Hence the revolt amongst Scottish working classes against housing conditions which had been bequeathed to them by their forefathers. The people must get a better class of house at a rent much less than hitherto charged, and to secure that pressure must be brought to bear on the Government to give grants to be used to provide working-class houses on condition that the rent would be such as would meet all charges except interest on capital invested in the property. By abolishing interest houses could be let at half the rent. Committees were appointed to promote the policy of the Scottish National Labour Housing Association. It was agreed to support the policy of securing better housing conditions for the working classes and obtaining grants from the State for the building of houses let at rents to meet the cost of construction and maintenance, but to include no charge for interest.

A proposal that Ottawa, including the capital and the sister city of Hull, be made a federal district is one of the recommendations of the Federal Town-Planning Commission, whose report has been laid on the table of the Dominion House of Commons. Other important recommendations are made in the report, including a comprehensive plan of improvement and development, and the laying out of a national park of 75,000 to 100,000 acres on the Laurentian Hills, north of Ottawa. The recommendations are not all for immediate adoption, but form a scheme of development for the next half-century. The Commission are strongly of opinion that improvements in the area about the capital and Hull should not be undertaken without first establishing a federal district and securing for the federal authorities some control of local government. It is suggested that the federal district should extend from Chats Falls, at the head of Lake Deschenes, about thirty miles west of Ottawa, to Green's creek, about four miles east of Ottawa, and about ten miles north and south from the capital. The Commissioners see an opportunity to make "this northern capital the most beautiful in the world." The plans of the Commission show separate buildings on Parliament Hill for the House of Commons and Senate; these are semi-circular in shape, and are to be connected by overhead passages. On an opposite height will be a new City Hall and Law Courts. Laurier Avenue would be widened to 90 ft. and become the main thoroughfare of the city.

The Scottish Trade Unions Congress, at its meeting in Glasgow on Friday, adopted a resolution demanding the early publication of the report of the Scottish Housing Commission. The Chairman (who was a member of the Commission) said the evidence taken was a damning indictment of the housing conditions of the country. The housing conditions of the crofters in the Isle of Lewis, he added, were such as the history of the most savage races in the world could not equal.

Trouble has resulted, as might have been anticipated, from the bequest to St. Sidwell's Church, Exeter, by Mr. Harry Hems of a rod-beam and figures of Christ on the Cross. St. Mary and St. John, the chief cause of offence being the following inscription placed thereon:—"This Chicago beam was made by Harry Hems, sculptor, of this parish, who lived and flourished here, 1869-19—, and died —, having received the highest attainable honours awarded at the World's Fair, Chicago, 1893, and the gold medal at the International Exhibition, Antwerp, the following year for the work." Twice during

the life of Mr. Hems the rod was offered to the church, and on each occasion, after heated controversy, was declined by the parishioners in vestry assembled. At the Easter meeting of the vestry last week the acceptance of Mr. Hems's bequest was discussed, and it was decided by 15 votes to 4 to apply for a faculty for the erection of the rod in the church; but it is probable that the application will be opposed step by step by those who hope to prevent its erection.

The Town Improvement Committee of the Newcastle-on-Tyne Corporation have had under consideration the question of a new main road from Newcastle to Whitley Bay. The proposal is to make a road commencing from the junction of Chillingham Road and Stephenson Road, Newcastle, passing north of Walsend by Willington Square and Billy Mill Lane, joining an existing road in the Tyne-mouth area, and continuing directly to Preston Avenue, North Shields, and Whitley Bay. It was decided to authorise the city engineer to take levels and surveys and to confer with the other authorities concerned. The scheme, which has the approval of the authorities, will not be put in hand until after the war.

The Roman Catholic School Commissioners of Montreal, having awarded a contract to Mr. Joseph Laurier for the building of a school at a price of 176,700 dollars, Mr. F. A. Grothe asked Mr. Justice Dugas, in the Practice Court, for an interlocutory injunction to prevent the execution of the contract. The contention was that Mr. Grothe, being the lowest bidder, ought to have secured the contract, and that there was nothing in the plea of the commissioners that Mr. Grothe was not a resident of the city. The commissioners, it was stated, had given the contract to the successful bidder on condition that he executed the work at the price asked by the petitioner. The judge dismissed the petition on the ground that the commissioners were not bound to accept the lowest tender.

The Council of the Royal Scottish Arboricultural Society, having considered the various aspects of timber-growing in Scotland, have sent the following resolution to his Majesty's Ministers and all the Scottish members of Parliament:—"That it is necessary, in order to provide for the nation's future requirements of coniferous timber and such hardwood timber as can be economically grown in this country, and also to afford suitable and healthy employment for a large and ever-increasing rural population, that Government should now create the promised Department of Forestry in connection with the Board of Agriculture for the Development of Forestry in Scotland, with an adequate annual grant for the purpose, and should instruct the Department to prepare, without delay, schemes of afforestation, combined with small holdings and other rural industries, to be put into operation as soon as the war is over, so that advantage may be taken of the unique opportunity, when returning soldiers, sailors and others are desiring work, to induce a proportion of them to settle on the land by offering them immediate and suitable employment in comfortable and congenial surroundings."

The death is announced of Mr. W. E. Siddalls, assistant surveyor to the Hemel Hempstead Town Council.

The Swansea Corporation have received the sanction of the Local Government Board for borrowing £5,000 to build and equip a small-pox hospital.

Amended estimates amounting to £96,120 have been approved by the Gloucestershire County Council for roads improvements during the ensuing year.

A carved lectern has been placed in Seaford Church in memory of the late vicar, the Rev. H. G. Bonnewell, and was used for the first time on Easter Sunday. It is of well-seasoned oak, and is just 6 ft. in height. An eagle, poised on a starry globe, carries the Holy Book on his outstretched wings. The shaft is hexagonal in plan, each face being deeply traceried and filled with foliated patterns. The base is moulded, and three buttresses support the shaft. The carvers were Messrs. Harry Hems and Sons, of Exeter.

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as far as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting alterations of literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Eltham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributor's risks, and the Editor will not undertake to pay for, or be liable for, unsolicited contributions.

\*Drawings of selected competition designs, important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc., we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

Telephone: Gerrard 1291.

Telegrams: "Timeserver, Strand, London"

## ADVERTISEMENT CHARGES.

The charge for Competition and Contract Advertisements, Public Companies, and all official advertisements is 1s. per line of Eight Words, the first line counting as two, the minimum charge being 5s. for four lines.

RECEIVED.—B. P. C. M., Ltd.—H. and G.—M. and Co.—F. B. and C., Ltd.—S. and Co.—A. H. and Son.—F. A. N. and Co.—F. B. T.—R. F. W. and Son.

P.—Yes.

T. R. L.—Thanks; yes.

L. G. B.—Will do our best. 2 No.

W. R. S.—Yes. We give the address again in a note elsewhere.

L. C.—We gave all the designs but one at the time. The numbers and volumes are long out of print, but you can look up our office copies if you are passing.

C. E. George, A. G. Back, Isaac Seaman, H. S. Bounds, T. Welham, J. G. Moon, H. Price, H. S. Plante, and others are thanked for Masonic votes to hand.

URGENT.—PLEASE NOTE.—To prevent disappointment, owing to restricted and later postal deliveries, it is not safe to wait till Tuesday morning to send us advertisements for the current week's issue. Many reach us after 3 p.m., at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order THE BUILDING NEWS regularly of their newsagent or bookstall. With the present shortage of paper and probable still further rise in its price, it is futile to expect a newsagent to saddle himself or us with surplus unsold copies to oblige chance customers, on which, moreover, he or we have to pay heavy and increasing carriage charges.

At the meeting of the City Court of Common Council to be held to-morrow (Thursday) the chairman of the County Purposes Committee will report that Mr. Fredk. Clowes, D.Sc., has been retained as an expert adviser for gas purposes at a retainer of fifty guineas per annum.

Mr. Charles Cox, builder and contractor, formerly of Hackney and Stamford Hill, died on Saturday at his residence in Arlington Street, Eastbourne, in his eighty-first year. He carried out many large building contracts for the London School Board, amounting in the aggregate to £500,000.

The first section of a contemplated parade extension at Hastings, that near the pier, and a new bandstand of Ionic character, were formally opened last week by the Mayor. The work has been carried out from plans by the borough engineer, Mr. P. H. Palmer, and is part of a scheme which, when completed after the war, will have cost £100,000.

At Torquay on Monday the Mayor inaugurated a set of new medical and swimming baths built on Beacon Hill, overlooking the wide expanse of Tor Bay. They are arranged in suites for ladies and gentlemen, and the treatment which can be obtained in both suites includes Aix douche (single or double) and Scotch douche. Another room is allotted to the seaweed baths, and others to natural sea water baths and to medicated water baths, including Naumum, pine, and sulphur.

In the Chapel of St. Michael and St. George (formerly the Consistory Chapel of St. Paul's Cathedral) a statue of St. George carved in wood, has been placed on the highest point of the reredos. The statue is a gift of Lady Lucas Toth, in memory of three generations of members of the Order in her own family. The chapel is also to be presented by Mr. Alfred Mosely, C.M.G., with a picture of St. Michael for the central panel of the reredos. The picture will be a copy of Raphael's "St. Michael" in the Louvre.

## LATEST PRICES.

N.B.—All prices must be regarded as merely approximate for the present, as our usual sources of information are in many cases failing us.

## TIMBER.

Owing to stoppage of supplies all prices have advanced considerably.

IRON.		Per ton.	Per ton.
Rolled Steel Joists, English.	£20 0 0 to £21 0 0		
Compound Girders, Ordinary			
Sections	22 0 0	23 0 0	
Compound Stanchions	23 0 0	24 10 0	
Wrought-Iron Girder Plates	13 10 0	13 12 6	
Steel Girder Plates	13 15 0	13 17 6	
Steel Sheets (Single or Double)	11 10 0		
Steel Strip	10 15 0		
Basic Bars	11 15 0		
Mild Steel Bars	18 0 0	18 10 0	
Steel Bars, Ferro-Concrete			
Quality (basis price)	18 0 0		
Bar Iron, good Staffs	15 10 0	15 15 0	
10s., Lowmoor, Flat, Round, or Square	24 0 0		
Do., Staffordshire Crown	16 0 0	16 10 0	
Boiler Plates, Iron—			
South Staffs	8 0 0	8 15 0	
Best Bessemer	9 0 0	9 10 0	
Angles, 10s., Tees 20s. per ton extra.			
Builders' Hoop Iron, for bonding, £13 5s. to £13 15s.			
Do., galvanized, £20 to £20 10s. per ton.			
Galvanized Corrugated Sheet Iron—			
No. 18 to 20. No. 22 to 24.			
6ft. to 8ft. long, inclusive	Per ton.	Per ton.	
gauge	£30 0 0	£30 10 0	
Best ditto	£2 0 0	£2 10 0	
Cast-Iron Columns	£13 10 0 to £14 0 0		
Cast-Iron Stanchions	13 10 0	14 0 0	
Rolled-Iron Fencing Wire	8 15 0	9 5 0	
Rolled-Steel Fencing Wire	7 15 0	8 0 0	
Galvanized	6 5 0	6 15 0	
Cast-Iron Sash Weights	7 0 0	7 10 0	
Cut Floor Brads	15 0 0	15 5 0	
Corrugated Iron, 24 gauge	16 0 0		
Galvanized Wire Strand, 7 ply,	14 5 0		
14 B.W.G.	10 11 12	B.W.G.	
B.B. Drawn Telegraph Wire, Galvanized—			
0 to 8	9	10	
£10 10s. £10 15s. £11 0s. £11 5s. £11 15s. per ton.			
Cast-Iron Socket Pipes—			
3 in. diameter	£7 5 0 to £7 12 6		
4 in. to 6 in.	7 0 0	7 2 6	
7 in. to 24 in. (all sizes)	7 7 6	7 12 6	
Coated with composition, 5s. Od. per ton extra.			
Turned and bored joints, 5s. per ton extra.			
Too—	Per ton.	Per ton.	
Cold Blast, Lillieshall	137s. 6d. to 142s. 6d.		
Hot Blast, ditto	100s. Od. to 107s. 6d.		
Wrought-Iron Tubes and Fittings—Discount off Standard Lists f.o.b. (plus 2½ per cent.)—			
Gas-Tubes	58½ pc.		
Water-Tubes	55 "		
Steam-Tubes	51½ "		
Galvanized Gas-Tubes	47½ "		
Galvanized Water-Tubes	45 "		
Galvanized Steam-Tubes	37½ "		

## OTHER METALS.

	Per ton.	Per ton.
Lead Water Pipe, Town	£42 0 0 to	
Country	£43 0 0	
Lead Barrel Pipe, Town	£43 0 0	
Country	£44 0 0	
Lead Pipe, tinned inside, Town	£44 0 0	
Country	£45 0 0	
Lead Pipe, tinned inside and outside, Town	£46 10 0	
Country	£47 10 0	
Composition Gas Pipe, Town	£45 0 0	
Country	£46 0 0	
Lead Soil-pipe (up to 4½ in.) Town	£45 0 0	
Country	£46 0 0	
(Over 4½ in. £1 per ton extra.)		
Lead, Common Brands	25 10 0	26 0 0
Lead, 4lb. sheet, English	35 15 0	36 5 0
Lead Shot, in 28lb. bags	24 15 0	
Copper Sheets, Sheathing & Rods	152 0 0	153 0 0
Copper, British Cake and Ingot	135 0 0	136 0 0
Tin, English Ingots	205 0 0	206 0 0
Do., Bars	276 0 0	207 0 0
Pig Lead, in cwt. Pigs, Town	33 12 6	34 12 0
Sheet Lead, Town	£41 10 0	
Country	£42 10 0	
Genuine White Lead	£55 0 0	
Refined Red Lead	56 0 0	
Sheet Zinc	145 0 0	
Spelter	33 0 0	110 0 0
Old Lead, against account	31 5 0	
Tin	11 5 0	
Cut nails (per cwt. basis, ordinary brand)	1 3 0	

\* For 5 cwt. lots and upwards.

## I BUY

## SCRAP METALS

ARTHUR P. COLLINS, Snow Hill, BIRMINGHAM.

Phone Central 1020. Telegrams Metalico, Birmingham.  
Bankers The National Provincial Bank of England, Ltd., Bennett's Hill, Birmingham.

## SLATES.

	in.	m.	£ s. d.	per 1,000 of
Blue Portmadoc	20	10	11 2 6	1,200 at r. stn.
"	16	8	5 10 0	"
First quality	16	10	10 12 6	"
Blue Baigor	20	10	11 5 0	"
"	20	12	11 17 6	"
First quality	20	10	11 0 0	"
"	20	12	10 12 6	"
"	16	8	5 10 0	"

	in.	in.	£ s. d.	per 1,000 of
Eureka unfading	20	10	15 17 6	1,200 at r. stn.
green	20	12	18 7 6	"
"	18	10	13 5 0	"
"	16	8	10 5 0	"
Permanent Green	20	10	11 12 6	"
"	18	10	9 12 6	"
"	16	8	6 12 6	"

## BRICKS.

(All prices net.)		£ s. d.	per 1,000
First Hard Stocks	£2 0 0	per 1,000 alongside, in	
Second Hard Stocks	1 16 0	"	
Mild Stocks	1 14 0	"	
Picked Stocks for		delivered at	
Facings	2 12 0	raily, station.	
Flettons	1 10 0	"	
Pressed Wire Cuts	1 18 0	"	
Red Wire Cuts	1 14 0	"	
Best Fareham Red	3 12 0	"	
Best R-d Pressed		"	
Ruabon Facing	5 5 0	"	
Best Blue Pressed		"	
Staffordshire	5 0 0	"	
Ditto Bullnose	5 5 0	"	
Best Stourbridge Fire-		"	
bricks	4 15 0	"	
2½ in. Best Red Ac-		Net, delivered in	
cricton Plastic	4 10 6	full truck loads	
Facio Bricks		in London.	
3½" Accrington Best Red Plastic Facing Bricks	£2 10 0	Per 1,000	
3½" ditto Second Best Plastic ditto	2 6 6		
Ditto Ordinary Secondary Bricks	1 11 3		
Ditto Plastic Engineering Bricks	1 17 6		
Sewer Arch Brick, not more than 3½ in			
thickest part.	2 0 0		
3½" Chimney Bricks fit for outside work	2 6 0		
3½" ditto ditto through and through	2 0 0		
3½" Beaded, Ovolo and Bevel Jambes; Octa-			
gons; 2½" and 3½" radius Bullnoses; Stock	3 7 6		
patterns			
Accrington Air Bricks, 9" x 2 course deep, each	0 0 6		
Ditto ditto 9" x 1 course deep, each	0 0 3		
Accrington Chamber Arches—			
3 course deep 4½" soffit, per foot opening..	0 1 3		
4 " 4½" " " " " " " " "	0 1 8		
5 " 4½" " " " " " " " "	0 2 1		
6 " 4½" " " " " " " " "	0 2 6		
3 " 9" " " " " " " " "	0 2 1		
4 " 9" " " " " " " " "	0 2 11		
5 " 9" " " " " " " " "	0 3 6		
6 " 9" " " " " " " " "	0 4 6		

Net free on rail, or free on boat at works.

## GLAZED BRICKS.

HARD GLAZES (Per 1,000).		White, Ivory, and Best.	Best.	Second
Salt Glazed.		Buff, Cream, Other	Colours.	Colours.
Stretchers—				
£12 7 6	£11 7 6	£13 17 6	£17 17 6	£12 17 6
Heads—				
11 17 6	10 17 6	13 7 6	17 7 6	12 7 6
Quoins, Bullnoses, and 4½ in. Flats—				
15 17 6	14 17 6	17 17 6	21 7 6	16 7 6
Double Stretchers—				
17 17 6	16 17 6	20 17 6	24 7 6	18 7 6
Double Headers—				
14 17 6	13 17 6	17 17 6	21 7 6	15 7 6
One side and two ends, square—				
18 17 6	17 17 6	21 7 6	26 7 6	19 7 6
Two sides and one end, square—				
19 17 6	18 17 6	22 17 6	26 17 6	20 7 6
Splays and Squints—				
17 7 6	16 7 6	21 17 6	24 17 6	17 17 6
Plinth and Hollow Bricks, Stretchers and Headers—				
5d. each 4d. each 6d. each 6d. each 5d. each				
Double Bullnose, Round Ends, Bullnose Stops—				
5d. each 4d. each 6d. each 6d. each 5d. each				
Rounded Internal Angles—				
4d. each 3d. each 5d. each 5d. each 4d. each				
MOULDED BRICKS.				
Stretchers and Headers—				
8d. each 8d. each 8d. each 8d. each 8d. each				
Internal and External Angles—				
1/2 each 1/2 each 1/2 each 1/2 each 1/2 each				
Sill Bullnose, Stretchers, and Headers—				
5d. each 4d. each 6d. each 6d. each 5d. each				
Majolica or Soft Glazed Stretchers and Headers				
£22 17 6				
Quoins and Bullnoses—				
Not				
Compass bricks, circular and arch bricks of				
single radius 4½ in. per 1,000 over above list				
for their respective kinds and colours				
Camber arch bricks, any kind or colour,				
1s. 2d. each				
Stretchers cut for Closers and Nicked Double				
Headers, £1 per 1,000 extra.				

These prices are carriage paid in full truck loads to London Stations.

	£ s. d.	Per yard.
Thames Sand	7 6	per yard, delivered.
Pit Sand	7 0	"
Thames Ballast	6 0	"

	£ s. d.	Per ton.
Best Portland Cement	36 0 0	to 41 0 delivered.
Ground Blue Lias Lime	21 0 0	per ton, delivered.

Exclusive of charge for sacks.

	£ s. d.	Per yard.
Grey Stone Lime	13 6	to 14 0 delivered.
Stourbridge Fireclay in sacks 2½. Od. per ton at rail-		
way station.		

## STONE.

	per foot cube	£0 3 3
Yellow Magnesian, in blocks		
Red Mansfield, ditto		0 2 9
Red Coraehill, ditto		0 2 6
Darley Dale, ditto		0 2 5
Greenhill, ditto		0 2 4
Closeburn Red Freestone, ditto		0 2 2
Ancaster, ditto		0 2 0
Beer Stone, delivered on rail		
at Seaton Station		0 1 1
Ditto, delivered at Nine Elms		
Station		0 1 7½
Chilmark, ditto (in truck at		
Nine Elms)		0 1 10½
Hard York, ditto		0 2 0
Do. do. 6 in. sawn both sides,		
landings, random sizes		per foot sup. 2 8
* All F.O.R. London.		

	£ s. d.	per foot cube
Do. do. 3 in. slab sawn two		
sides, random sizes		0 1 3
Bath Stone—Delivered in rail-		
way trucks at Westbourne		
Park, Paddington (G.W.R.),		
or South Lambeth (G.W.R.),		
Delivered in railway trucks		0 1 7
at Nine Elms (L. & S.W.R.)		
Delivered on road waggons		0 1 8½
at Nine Elms Depot		
Delivered on road waggons		0 1 9½
at Nine Elms Depot		
Portland Stone—Brown Whit-		
ened in random blocks of 20 ft.		
average, delivered in railway		
trucks at Westbourne Park		
(G.W.R.), South Lambeth		
(G.W.R.), or Nine Elms		
(L. & S.W.R.)		0 2 5½
Delivered on road waggons at		
Pimlico Wharf or Nine Elms		
Depot.		0 2 6½
White Basebed—2d. per foot cube extra.		

## TILES.

	£ s. d.	Divrd. at
Plain red roofing tiles	42 0	per 1,000 ry. sn.
Hip and Valley tiles	5 6	per doz.
Broseley tiles	50 0	per 1,000
Ornamental tiles	52 6	"
Hip and Valley tiles	4 0	per doz.
Ruabon red, brown, or brindled		
ditto (Edwards)	57 6	per 1,000
Ornamental ditto	60 0	"
Hip tiles	4 0	per doz.
Valley tiles	3 0	"
Selected "Perfecta" roofing		
tiles: Plain tiles (Peake's)	46 0	per 1,000
Ornamental ditto	48 6	"
Hip tiles	3 10½	per doz.
Valley tiles	3 4½	"
"Rosemary" brand plain tiles	48 0	per 1,000
Ornamental tiles	50 0	"
Hip tiles	4 0	per doz.
Valley tiles	3 8	"
Staffordshire (Hanley) Reds or		
brindled tiles	42 6	per 1,000
Hand-made sand-faced	45 0	"
Hip tiles	5 6	per doz.
Valley tiles	5 6	"
"Hartshill" brand plain tiles,		
sand-faced	45 0	per 1,000
Pressed	42 6	"
Ornamental ditto	47 6	"
Hip tiles	4 0	per doz.
Valley tiles	3 6	"

## OILS.

	per tun	£28 15 0 to	£29 5 0
Rapeseed, English pale			
Ditto, brown	26 15 0		27 5 0
Cottonseed, refined	29 0 0		30 0 0
Olive, Spanish	39 10 0		40 0 0
Seal, pale	21 0 0		21 10 0
Cocoonut, Cocbin	46 0 0		46 10 0
Ditto, Ceylon	42 10 0		43 0 0
Ditto, Mauritius	42 10 0		43 0 0
Palm, Lagos	32 5 0		33 5 0
Ditto, Nut Kernel	35 0 0		35 10 0
Oleine	17 5 0		19 5 0
Sperm	30 0 0		31 0 0
Lubricating, U.S.	0 7 0		0 8 0
Petroleum, refined	0 0 6½		0 0 6
Tar, Stockholm	1 6 0		1 10 0
Ditto, Archangel	0 19 6		1 0 0
Linseed Oil	0 3 9		
Baltic Oil	0 4 0		
Turpentine	0 3 11		
Putty (Genuine Linseed			
Oil)	per cwt.	0 11 0	
Pure Linseed Oil			
"Stouty" Brand		0 9 0	

## GLASS (IN CRATES).

	15 oz.	21 oz.	26 oz.	31 oz.
English Sheet Glass	5d.	6d.	6½d.	7½d.
Fourths	5½d.	6½d.	7d.	8



Bridge and Island Buildings, Mount Melrose, t.  
Andrews, N.B. Mr. Paul Watkinson, M.A.  
F.R.I.B.A., Architect.

New Premises, Tottenham Court Road, W. for  
Messrs. Heal and Sons, Ltd. Messrs. Smith and  
Brewer, Architects.

Birmingham Municipal Technical School, New Extensions,  
Navigation Street. Plans and Section  
Messrs. Nicol and Nicol, A.A.R.I.B.A., Architects.

Ante-Chapel, Cloister, and War Memorial, St.  
George's School, Harpenden, Herts. Mr. H. W.  
Horsley, Architect.

The Smoking Room, Daily Chronicle Offices, Fleet  
Street. Messrs. Castle and Warren, Architects.

Among the pictures which it is more or less difficult to group are Mr. Frank Dicksee's "The Avenger" (408), in which the ethereal beauty of the avenger is as exaggerated as the ugly but grotesque wickedness of the monster that is being punished. Then there is Mr. Byam Shaw's "Arrested Spear" (973), in which the scene from "Persifal" is illustrated in a fashion which will doubtless enchant the lovers of the romantic, but will almost certainly pall on the rest of us who are face to face with fighting of another sort than that about which these golden-haired youths in shining armour knew much. Mr. W. Strang's conception of the personalities of King Solomon and "The Queen of Sheba" (602), which is a study in

hardly their attire, and still less so the accoutrements of the attendant man-at-arms. Sir William Richmond's two subjects, "Sheep" (426) and "Aphrodite, Mother of Æneas," are well rendered, but are not of much current interest. Mr. Anning Bell's "Spring Revel" (349) is well done, but perhaps hardly so Bacchanalian as the ladies in such amusements are supposed to be. His "Sleeping Beauty" (809) is good. "The Doctor Forbids" (677) is a well-conceived modern rendering of the forbidden indulgences at table objected to by the physician, to which the victim is submitting with better grace than did *Sancho Panza*. "The New Member" (646), by the Hon. John Collier, is a well-done group of pothouse politicians who are welcoming a new addition to their number and to the doubtless acceptable privileges of unlimited beer.

#### SCULPTURE.

The sculpture is not first-class this year. There are fewer exhibits, and those of any public importance are more or less familiar, or of comparatively little interest. In the Quadrangle the public get a free view of Sir W. Goscombe John's equestrian statue of King Edward VII. (1952), which is to be erected one of these days at Liverpool. Inside, the same sculptor has five other works. "Stokers" (1763 and 1764) are models of groups from the Engine Room Heroes' Memorial, Liverpool. No. 1904 is a statuette of "Luke V. Fildes, Esq., Coldstream Guards"; 1908 is a statuette bronze portrait, and 1937 is a bust of the late Lady Lever. Sir Thomas Brock sends a "Statue of the late Sir Dinshaw M. Petit, Bt." (1772), which is to be erected at Bombay. A more important work is his group for the "Titanic Memorial for Belfast" (1781). There is a statue of a draped female figure laying a wreath on the brow of a man in the waves, with two attendant figures. Sir Thomas also shows a marble bust of Sir James Begbie (1896). In the Central Hall Mr. Bertram Mackennal has a marble statue of "His Majesty the King in Garter Robes" (1771), the gift of H.H. the Aga Khan, G.C.S.I., etc. He has also in the Lecture Room a marble statue of the King in Coronation robes (1938), to be erected at Delhi, given by the Maharajah Sindhia of Gwalior. There is one of the Queen, also for Delhi (1940), by Sir George Frampton, given by the Maharajah of Bikanir. Mr. H. Thornycroft is more successful than most with all his exhibits. There is a good bronze portrait head of Mr. Thomas Hardy, O.M. (1902); "The Kiss" (1939), a marble group; and several memorials to fallen soldiers. Sir George Frampton has a plaster bust of "Nurse Cavell" (1899), a good portrait. Mr. Alfred Drury's diploma work is a marble statuette of Libby embodying the well-known lines in Rossetti's "Eden Bower," in which the first wife of Adam appeals to the serpent to find her his shape that she may go back to Eden and revenge herself on her successor in the affections of Adam and on him. It is small, but so good we wish it were larger. Mr. Drury also shows "Industry" (1777), a marble spandrel for the main entrance of the Victoria Memorial Buildings, Calcutta; "Queen Victoria Signing the Proclamation, 1858" (1778); and "Commerce" (1779), a panel and another spandrel for the same building. His other exhibits are a bust of "General Sir Robert Baden-Powell" (1826) and a bronze bust portrait (1894). "The Stone Age" (1761), by Mr. Paul R. Mather, is a portion of a group for the Royal College of Science. Mr. W. R. Clifton is represented by a bronze Memorial Panel to the late Sir Richard

G. Tangye" (1825), erected in the Birmingham City Art Gallery; a bust of "Lieut.-Col. Sir George Roos-Keppel" (1828); "The Late Earl Roberts, K.G." (1935), a marble head executed from sittings during the last year of Lord Roberts' life; and a small statuette, "An Adventure in Borrowed Plumes" (1943).

Speaking generally, what memorial work is shown in connection with the war has hardly yet risen to its task. The sculptor and his brother artists will doubtless learn more and more that the tributes they will be asked to furnish to the fallen, in our great national buildings, our churches and schools, and our homes, must express at once the loving regret of the nation and the personal affection of kinship, and should evoke an inspiration akin to that which glorified the heroes and martyrs of the past, which should surely prove more fruitful than the comparatively faint interest attaching to the response to the calls on statues to the average men of varied activities in ordinary life.

A few good enamels are shown. About the best is Miss Cecilia Adams' "The Kneeling Madonna" (1815), after Botticelli. The treatment is as delicate as the workmanship is superior, and we are not surprised the work was bought on the private view day by a discriminative purchaser. Miss Mary C. Godfrey shows an "Angel Playing Mandoline" (1814); Miss M. C. Green exhibits one after G. F. Watts, "For He Had Great Possessions."

#### INTERNATIONAL SOCIETY OF SCULPTORS, PAINTERS, AND ENGRAVERS.

On the whole above the average, especially as far as the works of the principal exhibitors are concerned. There is perhaps also quite as much to interest, or at any rate to divert, as amongst the rank and file at the Royal Academy.

Mr. William Strang has two good pictures, "Cynthia King Farlow" (1) and "The Listener" (3). The first is in some respects more attractive, but we like the second as well as anything he has ever done. Mr. Louis Sargent sends three—two Cornish scenes (2 and 4), both excellent, and "The Breithorne" (79). Of the five hung we like Mr. Gerald Kelly's "Reyes Mourning" (15) best. Mr. William Nicholson has three portraits and a curiously elaborate still life, "The Hundred Jugs" (97), well done, but why worth the while is another matter. Mr. James Pryde's "Shrine" (28) is one of the best things in the exhibition. Mr. Glyn Philpot's "Under the Sea" (18) is a somewhat heterogeneous collection of still life, artistically arranged, but suggestive of doubts whether ever such a find was made all together.

Mr. Alfred Wolmark's "Panel for Commerce" (148) is a good decorative panel, and something more. The best portrait shown is Mr. John Lavery's "The Lady Ursula Grosvenor" (37), and he has well deserved his chance of so well reproducing so charming a sitter. His "Moonlight in Morocco" (14) is also good. We like both of Mr. Oliver Hall's pictures, the "Hunt of the Curlew" (17) and "The Last Load" (18). Mr. Harry Morley's "The Entombment" (6) leaves little doubt as to its inspiration, but it is far removed from the mere success of a copy. Of Mr. P. H. Padwick's two contributions, his landscape, "Autumn" (102), will probably find most favour. Mr. S. J. Lamorna Birch is effectively to the fore with two West Country subjects, "A Devonshire River" (94) and "The White House, Lamorna"

(131). Mr. Ernest Proctor's "Virgin of the Harbour" (53) is good. Mr. A. St. John Partridge has three good East Coast water-colours (184, 185, and 186) and a fine one of "Dixmude" (391). Mr. George Belcher contributes a little welcome humour with drawings (323, 327, 328, and 332). The last, perhaps, is the most comical, with Mary Jane's smutty face poked up the coal-hole, as she exclaims: "Ere, that last one didn't seem a full one to me!" Mr. G. W. Lambert has good pencil drawings of military men and others (343-349). There is a good coloured etching of "Streatley Mill" (367), by Mr. James A. Found; and a well-conceived and drawn "Panel for a Music Room" (377), by Mr. M. Fisher Pratt.

There is not much sculpture worth notice, with the exception of a very good bronze, "Nude" (158a), by the late H. Gaudier Brzeska.

#### BURLINGTON FINE ARTS CLUB.

##### BRITISH HERALDRY.

The cordial congratulations of all interested are due to the able committee who have organised this most interesting exhibition, and to Mr. Oswald Barron, F.S.A., for the scholarly and readable introduction he has contributed to the bulky but well-arranged catalogue. As he reminds us, in war all our heraldry began, and so far the objects shown are of timely topical interest. And though heraldry in our own day belongs to peace, its applications are still all reminiscent of war. Those still appertaining to war, truth to tell, are not very inspiring or adequate. For the last armorial badges we must look to the poor and meanly devised regimental badges, which the button-maker's art has stamped out according to the sealed patterns of the War Office. But, poor as they are, something of the potency of the old charm remains with them, and still "pride goes with the swan that was Bohun's swan"; and a Staffordshire man will do honour to the knot on his cap and collar that was Stafford's long before the soldier had his first musket.

Space would fail us adequately to review the whole exhibition, and we can do no more than indicate the principal classes under which they are shown. Of stone carvings the three most interesting are lent by the Office of Works, comprising a shield of the arms of Edward III., formerly in the City Guildhall, and Jane Seymour and Anne Boleyn's badges from Hampton Court.

Of tapestry, the best examples are a fifteenth-century panel representing the Trinity, with angels and sacred heraldry, lent by Sir Hercules Read; and a sixteenth-century border with Henry VIII's arms and badges from Hampton Court, lent by the Office of Works. Of needlework applied to ecclesiastical vestments we have some fine embroidered stoles decorated with shields of arms, lent by Miss Weld and Lord Willoughby de Broke; a chasuble, with the arms and badges of the Staffords and heraldry of allied families, lent by Colonel Butler-Bowden; and a purse with shield of the Passion, lent by the Duchess of Norfolk.

There is a goodly show of heraldic book-bindings, with many of the sixteenth century, ornamented with the heraldry of the Tudor Sovereigns, etc. These are lent by H. M. the King, the Archbishop of Canterbury, H. E. the Greek Minister, the Warrington Museum, and other owners.

The heraldic paving tiles and monumental brasses are especially noteworthy. The former include a large collection of English tiles lent by Captain Charles Lindsay, and the latter many important

shields of arms, formerly attached to monuments, lent by various owners.

The signet rings and seals make a goodly show. Many of the rings, with the arms of their original possessors, are lent by Colonel Croft Lyons, Mr. Maurice Rosenheim, Mr. Luttrell, and others. The silver and bronze heraldic seals lent by the Society of Antiquaries, the Norwich Museum, Mr. F. A. Crisp, and many private owners are particularly interesting. They include the twelfth-century seal of the town of Dunwich; the fifteenth-century seals of Bartholomew Edrich, Lord John Nevill of Fauconbridge, and Thomas Rokely; and the early seventeenth-century seal of Francis Earl of Rutland, lent by the Duke of Rutland. There is also a fine series of seals attached to deeds lent by various owners and the Society of Antiquaries, and several great seals of Sovereigns, lent by H.M. the King, the College of Arms, and others.

Rolls and books of arms and illuminated pedigrees make an exceptionally attractive exhibit; the Warwick Roll, the Westminster Tournament Roll, and the Sidney Funeral Roll are especially interesting.

There is also a remarkable series of armorial pendants lent by the Royal Irish Academy, several museums, and Sir Guy Laking; and a good collection of fifty gold nobles of the reign of Edward III., lent by Mr. F. A. Crisp.

Some good armorial glass is contributed by Sir Hercules Read, Rouge Pursuivant of Arms, the Architectural Association, and others; and the finest copy in existence of "The Book of St. Albans," a fifteenth-century book on hunting, hawking, and armoury, lent by the Society of Antiquaries.

There is nothing in the room but what is authentically old—no casts, no copies, no photographs. Nor is there a single item in the catalogue of this notable share of what remains to us of heraldic movables older than the Jacobean period which the genuine antiquary or the intelligent student of heraldry can afford to overlook.

At the last meeting of the East Elloe Rural District Council, held at Holbeach, the salary of the surveyor, Mr. F. Mush, was increased from £160 to £200 a year.

On Monday evening Professor Beresford Pite, F.R.I.B.A., delivered at the L.C.C. School of Building, in Ferndale Road, Brixton, the first of a course of five free lectures, illustrated by lantern views, on "Town Planning and Architecture." The lecturer dealt with the planning and buildings of ancient Greek and Roman cities.

The new medical and swimming baths on Beacon Hill, Torquay, opened by the Mayor of that borough last week, have been built from plans by Mr. Alfred J. Taylor, M.S.A., of Bath. The contractors were Messrs. Bovey, of Torquay. Adjoining an assembly hall (which can be converted into a skating rink) is a swimming pond 100 ft. by 30 ft. in water area, and graduated in depth from 3 ft. 6 ins. to 7 ft. 11 ins. It is provided with forty-seven dressing-boxes, a gallery, and two cold-water showers. The dressing-rooms have wooden floors, and the walls have dados of tiling, whilst the floors of corridors and offices are laid with terrazzo, supplied by Messrs. Carter, of London and Poole.

Mr. Asquith unveiled in St. Paul's Cathedral on Friday the memorial to Captain Robert F. Scott, C.V.O., and his brave companions who perished in the Antarctic Expedition of 1912. The memorial, which has been placed in the south transept of the Cathedral near the entrance to the crypt, exhibits a medallion portrait of Captain Scott, with a panel in relief representing the Polar party on the march. These features are contained within an architectural framework surmounted by three allegorical figures—on the right "Discipline," on the left "Courage," and in the centre "Glory," holding five wreaths in outstretched arms. The inscription on the tablet was composed by Earl Curzon. Mr. S. Nicholson Babb executed the memorial.

## SOME CHURCHES IN NORTH EAST HERTFORDSHIRE.\*

I have selected this portion of Hertfordshire, as it contains a number of interesting but little-known churches, and part of it is difficult of access. On the west it is bounded by the Great Northern Railway, through Hatfield, Hitchin, and Royston, to Cambridge. On the east is the Great Eastern line through Bishop's Stortford, where it enters Essex, and thence to Cambridge. The distance between these two main lines is from fifteen to twenty miles, and from north to south about sixteen miles. The only other railway in this large area is a short line from St. Margaret's to Buntingford. It is mostly hilly country, as the Chilterns at their eastern end form high downs overlooking the Cambridgeshire flats. The Ordnance Survey datum at Ashwell, our lowest point, is 150 ft., and our highest, at Reed, is about 510 ft. The roads to the villages are far from good, and many of them are impassable in wet weather. The whole of the subsoil is chalk and flints, so we find these materials largely used for building purposes, though a few churches have a hard stone from Northamptonshire in some parts of their structures. With one exception all the churches I shall speak of are north of a line drawn from Hitchin to Bishop's Stortford.

I shall begin with the exception, which is the church at Offley, about three miles west of Hitchin, and then work round by north and east.

### OFFLEY.

The Church of St. Mary Magdalene consists of chancel, nave with aisles, west tower, and large south porch. The only part that interests us is the nave, as the chancel was practically rebuilt about 1777, the west tower was rebuilt of brick early in the nineteenth century, and the south porch is of brick covered with cement. The nave and aisles belong to the original church erected early in the thirteenth century. The arches, of two splayed orders, are pointed, and the carved caps form a very fine series of early foliage, those on the south side being the earlier in type. Those on the north side are not so stiff in character, and are nearer the purely 13th-century forms; no two are alike. On one of the capitals on the north side is a carved fruit stalk bearing a close resemblance to the common "lords and ladies" (*arum maculatum*) of our hedgerows; it is an early example of natural forms unconventionalised. The font is of Late 14th-century work, of Totternhoe stone; each side of the octagonal basin is carved with tracery. A very interesting and uncommon feature is a roughly cut inscription on the splay of the east window of the north aisle, recording the consecration of the aisle chapel. It reads as follows:—"Dedicatu fuit istud altare in Festo Sancti Sulpicii Episcopi anno domini MCCCXVII. et Regis Henrici V. quarto. Bellew." ("This altar was dedicated on the Festival of St. Sulpicius, Bishop in the year of our Lord 1417, and in the fourth of King Henry V.") The name Bellew, or Bellev, at the end, may have been the priest of the chapel. Other interesting features are the curious tiles built in over the piscina in the south aisle. There are two tiles, similar in all respects. They were found when the chancel was rebuilt in 1777, and built in here with this inscription over them: "These tiles were found within this church, 1777, which proves that King Offa was buried here." This was long regarded as a most mysterious tile inscription, and even as late as 1872 Cussans, the county historian, confessed himself at a loss, as he could only make "ossa will do" out of it. It was not until comparatively recently that some genius discovered that the letters were reversed the legend then reading, "Dno. confido." They are of plain red tile, with the groundwork sunk about one-sixteenth of an inch, the sunk surface being covered with rough white plaster. These tiles have extra wide margins, which are not sunk, so they could hardly have been used to stamp

other tiles; they may have been used to impress coloured decoration on wall surfaces. The only other point I shall draw your attention to in this church is some graffiti work repeated on several of the nave piers. It consists of two interlacing triangular figures within a circle. These have probably no meaning other than perhaps a symbolical one, but such work is sometimes of value in helping to determine dates, as, for instance, at Knebworth Church, where the Bouchier knot is found cut on various parts of the building, the manor having belonged to that family at the end of the fifteenth century. The device from Newnham, near Ashwell, is cut on the eastern jamb of the south doorway. On the north side of the railway between Hitchin and Royston is a portion of Hertfordshire containing several interesting churches.

### BYGRAVE.

On the summit of a hill, about 2½ miles north-east of Baldock, is the small church of Bygrave, which need not detain us long. It is a small aisleless church with nave of twelfth century date, a Late 14th-century chancel, and a small western turret. The chancel-screen is of fifteenth century date, and the modern pulpit has some old tracery in its panels. The font is octagonal, the sides of the basin being carved with the emblems of the Passion. The low-side window on the north side of the chancel has a peculiarity which no other example in the county possesses. It has a single cusped light, with the original iron bars outside the present glazing. The window itself is recessed about 8 in. the recess having a square head above the window and being continued down 2 ft. 10 in. below the window sill, thus forming a ledge 8 in. wide and about 12 in. from the ground outside. It may be that this ledge was intended as a place to kneel upon. This feature appears in no other part of the church.

### HINXWORTH.

About 4½ miles north of Baldock is Hinxworth Church, which is small but very interesting. The church has an aisleless nave, a modern chancel, a west tower and a south porch. The nave and tower were built before 1350; about a century later the chancel arch was moved some two feet eastward, as may be seen from the outside, and also from a later passage formed at the top of the rood-stair to suit the new position of the rood-loft. Chapels, marked by canopied niches, were also formed, that on the south having a low-side window. Lastly, two large traceried windows were inserted, and the clerestory was raised and a flat roof put on. The awkward shape of the chancel arch is evidently due to the want of height allowed by the new flat roof, the previous one having been steep-pitched. The present roof was put on at the restoration of 1887, owing to the decay of the 15th-century one. The outside is covered with plaster on the flint rubble walls, and on the eastern face of the tower may be seen the water-table of the original steep 14th-century roof. The niches marking the nave chapels show somewhat elaborate carved canopies for such a remote church. They both retain traces of coloured decoration. The one on the north side is set on the high sill of the large 15th-century window, that on the south, on the low wide sill of the low-side window. This window is of two traceried lights under a square head. On the splay of the north and south doorways, which are of fourteenth century date, are a number of scratched inscriptions and letters, but I have not been able to decipher any of them; one, on the north doorway, is apparently a complete sentence, but cut on a very roughly tooled stone, the tooling being clearly a manual work. On the south doorway the writing is more fragmentary. The south doorway is still screened by a long wooden bar, which can be pushed back its full length into a socket formed in the wall.

### ASHWELL.

The last church I shall speak of is the part of Hertfordshire near Ashwell, a village on the edge of the Cambridgeshire flats. The station of Ashwell is about two miles away. This is, externally, probably the finest church

\* By A. Whitford Anderson, A.R.I.B.A. A paper with lantern illustrations recently read before St. Paul's Ecclesiological Society.

At Wallington Church, also in this district, is another example of a low-side window to a nave chapel.

in the county, and is chiefly of fourteenth-century date. It consists of a large nave with aisles, a chancel with evidences of a south vestry, now destroyed, and a very fine western tower entirely faced with stone, but in a very dilapidated condition owing to the perishable nature of the "clunch" of which it is built; the timber spire is of two stages, as at Baldock. The walls of the church are of flint rubble. The churchyard is entered through an open timber lychgate of 15th-Century work. The exterior of the tower has been enriched with bands of tracery and battlements, but all of it is much decayed. The south porch, which was added early in the fifteenth century, has a parvise over it. There is good flowing tracery in some of the windows, especially in the north aisle. The nave is of five bays, with arches of two moulded orders, and the piers have clustered shafts. At the eastern end of each aisle is a piscina, the one in the south aisle having a tall niche over it. The piscina and three sedilia in the chancel, all of fourteenth-century date, are grouped together under ogee-cusped and crocketed arches. At the west end of both aisles are good carved and traceried oak screens, probably removed from the east end, and behind the organ stool are remains of traceried stall fronts, with two finials. The pulpit is of carved oak, dated 1627, and beside the south door is an alms-box of seventeenth-century date. Probably the most interesting features of the church, which belonged to the Abbey of Westminster, are the inscription and rough drawing cut on the north wall of the tower, inside. The inscription consists of three lines, but the first words in the second and third lines are obliterated. The reading accepted by the "Victoria" History of the County is that by Mr. Charles Johnson, M.A., and I cannot do better than quote Mr. Johnson's description.\* "The principal inscription in large letters should read:—

M. C. ter. x. penta miseranda ferox violenta.  
(Atrocis pestis) superest plebs pessima testis.  
— (hic anno Maurus in orbe tonat.

The subordinate inscriptions are to be regarded as glosses. Over the first line is "XIX." over "pestilencia," explaining the allusion of the line below. So also "penta" is glossed as "quinque." The first two lines will, then, translate:—1000, three times 100, five times 10, pitiable, savage and violent. A wicked populace survives to witness (to the shocking plague), the allusion being to the scarcity of labour in 1350 produced by the Black Death. The gloss at the end of the second line appears to read "in fine Quadragesime (?) ventus validus," i.e., "a great wind at the end of Lent," and may refer to the year 1350 (if it refers to 1361 *Qe* cannot be Quadragesime). The third line, as appears from the gloss at the end, relates to 1361, and to the great storm on St. Maur's Day (January 15), alluded to by the author of "Eulogium Historiarum" (Vol. III. p. 229). Above the inscription is a roughly cut sketch of a large church, which contains features of both Westminster Abbey and Old St. Paul's. There are other inscriptions in the church, but they are not very legible.

#### REED.

Leaving the portion of Hertfordshire along the old Icknield Way to Royston, we enter on that large tract I alluded to as being bounded by the two great railways. About three miles south of Royston, on the main London Road (the Ermine Street of former times), we come to Reed Church, standing about 500 ft. above the Ordnance datum. The church is a small one, and consists of an 11th-Century aisleless nave; a 14th-Century chancel, and a 15th-Century west tower; the south porch is modern. The nave is the most interesting part of the building, and appears to belong to a pre-Conquest period; it measures, internally, 34 ft. by 19 ft. All the external angles are formed of long-and-short work. It is quite possible, however, that these quoins are all that remain of the early work, as they have each (except the north-west) a base-course, which is not carried round the building, and, further, the western quoins have

another base-course, the upper one of which is carried round the 15th-Century tower. It seems possible that the quoins have been rebuilt at some period, re-using the old stones. The south doorway appears to date from late in the eleventh century, and is rude in execution. It is of Barnack stone. The capitals have rude scroll carvings. The only other example of long-and-short work in the county occurs at Westmill Church, near Buntingford, on the south-east angle of the nave. The basin of the old 15th-Century font lay for many years in the garden of the adjoining farm, but it has been recently removed to the church at Barkway, to which Reed church is annexed.

#### BUCKLAND CHURCH

is also on the main London road, about one and a half miles south of Reed. Salmon records in his history of Hertfordshire that, in his time, an inscription existed in one of the windows, to the effect that Nicholas de Bokeland built the church and the chapel of St. Mary on the south of the nave, in 1348. To that period belong the present chancel, nave and eastern part of the south aisle; the west tower is very early 15th-Century work, and the south nave aisle, with its arcade of three arches, and the south porch, were built late in the fifteenth century. The junction between the 14th-Century work of Nicholas de Bokeland and the 15th-Century arcade is clearly shown. The indications of the roof-loft and screen, now both swept away, are interesting. The doorway to the roof-stair is set in a splay in the north-east angle of the chapel; the stair has gone, but the upper doorway remains in the nave. Under the doorway are two corbels; on the north wall opposite, between the chancel arch and first nave window, a space of 4 ft. 7 in., are four corbels which formerly supported the roof-loft; the two upper ones are about 11 ft. from the floor, the lower ones about 8 ft. 6 in. They are about 4 ft. apart, the western ones being set in the inner jamb of the 14th-Century window, the moulding of which is worked on them. The only other feature of special interest is the low-de window on the south side of the chancel, the inner sill of which is 1 ft. 9 in. from the floor. There are remains of casement hinges inside, and outside are the original iron bars. When the window was discovered and opened up a number of years ago, distemper paintings were discovered on the inner jambs; these were destroyed, but the then rector kept tracings of them. One represented the Virgin holding the infant Christ, the other was the kneeling figure of a female saint.

#### ANSTEY.

From Buckland we turn east for four miles by narrow roads to Anstey, which has a curious and interesting church. It consists of a chancel, to which was formerly attached a north vestry, a central tower with transepts, and a nave with aisles and south porch. The earliest parts of the church are the central tower and portions of the nave walls; the transepts and chancel belong to the Late 13th and Early 14th Centuries, when the destroyed vestry was also built; the nave aisles and arcades are of Later 14th-Century work; the aisle windows and south porch are of the 15th-Century. The tower arches are semicircular, with heavy banded roll-moulding on east and west, and banded shafts with simply carved caps. Squints were formed behind the eastern piers of the tower when the chancel was rebuilt early in the fourteenth century. On the north side of the chancel is the doorway to the destroyed vestry; it goes under the windows which are raised above the vestry. The door has moulded arch and jambs and carved animals for label stops. On the north side of the chancel is the 14th-Century piscina, which has open arches to the north and west; it has a stone credence shelf. The sedilia has three seats; two, under the window, are plain, the third is in an arched recess. On the outside of the north wall of the chancel are marks showing the position of the destroyed vestry; a little to the east is an arched niche; the chancel windows have geometrical tracery. At the south-west angle of the south transept is a circular turret containing a stair which led to a room formerly over the transept, before the roof was lowered. The stair is lighted by a

narrow window in the form of a cross. In the south transept is an Early 14th-Century arched tomb, with defaced tracery and crocketed finials. Under the arch is an effigy of an unknown civilian. The basin of the font is Late 12th-Century; it is square with rounded edges, and bears curious carved figures of mermen apparently holding their tails in their hands. The churchyard is entered through a Mediaeval lychgate of oak, part of which has been built in with flints to form a toolshed.

#### MEESDEN CHURCH

is about two miles east of Anstey. It is in a most out-of-the-way spot in the county close to the Essex border. The village is about half a mile west of the church. The church is small, and consists of a chancel, aisleless nave with two very small transepts, a south porch, and a west bell turret of wood. The outside facing and most of the external stonework is modern. The nave was built in the early part of the twelfth century; the chancel and transepts late in the thirteenth century. The only 12th-Century detail left is the south doorway, which has plain, square-edged arch and jambs. Both the south doorway and the west doorway, which has a splayed pointed arch of fourteenth-century date, are of hard Northamptonshire stone. The north and south transepts are very small, being only 13 ft. wide by 6 ft. in depth. The outer walls were rebuilt on the old foundations in 1866, but the Late 13th-Century arcades are untouched. The central piers are octagonal, with moulded caps and bases, and the arches are moulded; the width between central pier and impost is only 4 ft. The details are very similar to those of the nave arcade at Barley Church, a few miles further north. In the chancel are a piscina and one sedile with trefoiled arches of Late 13th-Century work. The south porch is built of brick, and, although the design is of a mid-16th-Century type, I think it must have been built about a century later, as the brickwork is built in Flemish bond, which I have never met with earlier than about the middle of the seventeenth century, and the two-inch bricks are also of that period. The font is octagonal, with panelled sides of early seventeenth-century date. The most interesting feature in the church is the tiling round the altar. It has a width of nearly 10 ft., and all the tiles remain, though very much worn. The tiles were glazed, and there are a few still perfect in colour and glaze, sufficient to determine the whole colour scheme.\* The two principal colours are dark green and yellow, the small circles connecting the larger ones being brown. Most of the tiles are worn down to the original red brick, but many still retain the coating of white lime laid on below the coloured glaze to increase its brilliancy. The ornamental figures stamped on many of these tiles are surprisingly sharp and clear, even where the glaze goes over them. This work dates from about 1300, and the unusual feature of shields of arms helps us to determine the date. The shield is one of the three scutcheons—barry vair and gules—from the arms of the Monchensey family who held the manor at the end of the thirteenth century.

We now turn south into the Pelham district, which contains three churches of that name, Brent Pelham, Stocking Pelham, and Furneux Pelham. I shall speak only of the first and last.

#### BRENT PELHAM.

The church of Brent Pelham is small, and consists of chancel, nave, and west tower, all a good deal restored. At the entrance to the churchyard are the old stocks and whipping-post, very few of which survive in Hertfordshire. The nave and chancel were built about 1350, and the west tower a century later. There is not much to detain us at this church, but the old oak door on the south, with its flowing tracery of the 14th-Century, is an interesting survival. Features, however, of greater interest are the consecration crosses on the two

\* A coloured drawing by the present writer forms the frontispiece to Vol. iv. of the "Victoria" County History of Hertfordshire.



buttresses on the north side of the nave. The crosses are cut in the stonework of the buttresses; each bears the form of a cross patée; they are cut to a depth of about 1½ in., and are from 7 to 9 in. across. One buttress has two crosses, the lower about 6 ft. from the ground, the upper about 13 ft.; the other buttress has only one cross, about 4 ft. 6 ins. from the ground. Under a low plain arch of a recess in the north wall of the nave has been built in at some period, a very fine coffin lid of black marble of thirteenth century date, with carvings in high relief representing a floriated cross issuing from the mouth of a dragon; above the cross is a winged figure bearing a soul in the form of a small figure round which are the symbols of the Evangelists, winged. Nothing is known of the tomb, which is traditionally ascribed to one Piers Shonks, a mythical hero, who is said to have cheated the devil by being buried inside the wall, the devil having vowed to have his soul whether he were buried outside or inside the church. About two miles further south is

#### FURNEUX PELHAM.

The church stands on rising ground at the east end of the village, the main street of which descends eastward to a small brook, and rises again to a hill on the other side which is crowned by the old brick 17th Century Hall. The church consists of a chancel of late thirteenth century date; the west tower was built about the end of the fourteenth century, and the north and south nave aisles, with the clerestory and south porch, were added early in the fifteenth century. The south porch has a parvise, with turret stair entered from the south aisle. On the north side of the chancel are some plain lancets, and at the west end of the same wall is a 13th Century blocked low-side window. It may be mentioned that this window is on the opposite side of the church to the main road. The window is 12 in. in width, and the hooks of the casement still remain in the wall. The inner sill is 3 ft. from the chancel floor. On the south side are a piscina and triple sedilia, with moulded trefoil arches and shafted jambs of thirteenth century date. There is no chancel arch, which may have been removed when the south chapel was built; but in the south-east angle of the north aisle, which was probably St. Katherine's Chapel, is the entrance to the rood-stair. The stair itself remains, as also does the upper doorway to the loft. The nave roof is of fifteenth century date; the tie-beams are moulded and rest on traceried brackets. The main timbers are also moulded, and have carved bosses at their intersections. At the feet of the principal rafters are figures of angels; those on the north side bear musical instruments, those on the south have shields, two of which bear the painted arms of the Newport family, who owned the manor in the fifteenth century. There are many traces of colouring on the roof timbers. The aisle roofs are of the same date, but plainer. The south chapel has a roof of late fifteenth century date, which has been richly decorated in colour; on the rafters are remains of red, white, and blue chevrons. In the north nave chapel is a good 15th Century piscina, with roses in the spandrels. There is a fragment of a late fifteenth century screen, with shields bearing the arms of the Newport family.

#### LITTLE HORMEAD.

From Furneux Pelham we turn westward. About two miles from Buntingford is Little Hornead Church, which consists only of a nave and chancel, with a modern western bell-turret. The nave dates from about 1150, and the chancel appears to have been rebuilt in the thirteenth century. The chancel arch is of twelfth century date and has a flattened round arch of two orders; the jambs have circular shafts with scalloped capitals. The blocked north doorway is the most interesting feature of the church. It is a plain 12th-Century doorway with shafted jambs; it retains the original oak plank door covered with fine 12th-Century ironwork. It is two square panels in height, each panel filled with interlacing work formed of strap iron; in the lower panel one figure of a bird is left. On each

side is a vertical border of tendrils. The work is in a fairly good state of preservation and is now being well cared for. The font is of hard oolite and dates from the fourteenth century; the bowl is octagonal on a moulded pedestal. The sides of the bowl are carved with tracery and other devices.

#### WYDDIAL.

On the way to Buntingford we pass the church at Wyddial, which has been almost entirely rebuilt except the north chancel chapel and north nave aisle, which were erected in 1532, and are built of brick. The east window of the chapel is of three lights with traceried heads, all in brickwork. I think it is the only example of brick tracery in Hertfordshire. The arches to the chancel and nave are also of brick, but all the brickwork has been colour-washed and tuck-pointed. There are some good oak screens and high pews with pierced and carved panels of early seventeenth century date.

#### THROCKING.

The last church I propose speaking of is at Throcking, about two miles north-west of Buntingford. The church has a continuous nave and chancel covered with one roof; there is no chancel arch, and a single step forms the only division between nave and chancel. The nave and chancel are of fifteenth century date; the lower part of the western tower is of thirteenth century date, the upper part being of brick added in 1660. I only speak of this church because it possesses twelve consecration crosses on its internal walls; none are visible on the outside. These crosses have only been unearthed from the whitewash within the last three years. They are in the form of crosses patée circular in shape, but not enclosed in circles; they measure 9½ to 10 inches in diameter. The peculiar point is, that these crosses are not equally divided on each side of the church; there are eight on the north wall, two of which are in the chancel and four on the south wall, two being in the chancel and two in the nave. They were evidently placed on the walls before the Late 15th Century piscina was inserted, as one cross is half cut off by it. The crosses vary in height from 3ft. 2in. to 6ft. 9in. from the floor, and are nearly all in good preservation.

There are a number of other interesting churches in this part of Hertfordshire, and I have only dealt with the more notable features of some of them, but they are all worthy of a visit in spite of their comparative inaccessibility.

Mr. H. Rigg, of Crosby, Ravensworth, has been appointed temporary surveyor and inspector of nuisances by the Ambleside Urban District Council, in succession to Mr. E. H. Dodgson, the offices being vacant during the absence, on military duties, of Mr. C. Watson, the surveyor and inspector of nuisances.

At the annual meeting of the Imperial Arts League at Leighton House, held on Friday evening, the chairman, Lord Sudeley, observed that in bringing art exhibitions under the amusements tax the Government were placing an impediment in the way of struggling artists which must do them a great deal of harm. It was unjust also that large business establishments which displayed pictures for sale should pay no tax, while artists holding their own exhibitions were subject to it.

Lady Church, who gave to the Red Cross Sale held at Messrs. Christie's in April a selection of thirteen embroideries from the Greek Islands and the Near East, forming part of the collection of the late Sir Arthur Church, F.R.S., and re-acquired them at the sale, has since generously presented them to the Victoria and Albert Museum. The gift includes several pieces which were shown in the exhibition of embroideries of the Greek Islands and Turkey held at the Burlington Fine Arts Club in the spring of 1914.

The *City Press* states that the authorities of the Victoria and Albert Museum find it impracticable to keep together the collection of pictures, porcelain, and antique furniture bequeathed by the late Mr. Henry L. Florence, F.R.I.B.A., and that they are about to apply to the Court of Chancery for permission to allocate it to different sections of the Museum. If that request is complied with, the collection will not find its way to the Guildhall Art Gallery, the alternative provided in the will of Mr. Florence.

#### OBITUARY.

Captain R. Wilkie H. Edis, Territorial Force, who died at Prenda, Marsh Road, Pinner, on Friday last, was fifty-two years of age, and the only son of Colonel Robert W. Edis, C.B., F.R.I.B.A., past-president Architectural Association (1865-67), of the Old Hall, Great Ormesby, Norfolk. He was gazetted to his captaincy in the Territorial Force Reserve in 1914. Formerly he held rank as a captain in the Artists' Rifles, of which his father was the colonel-commanding, and he also held the honorary rank of captain in the Army. A military funeral was accorded Captain Edis at Pinner yesterday (Tuesday) afternoon.

Major Frank Peyton Skipwith, Royal Scots Fusiliers, Lieut. R.I.B.A., was reported missing on September 25 last, and no news has been received of him since. Major Skipwith was in practice with Messrs. J. S. Gibson and Walter S. R. Gordon, at No. 5, Old Bond Street, W. He had been a Licentiate of the Royal Institute of British Architects since 1911.

Second-Lieut. Thomas Paul Bonsor, Shropshire Light Infantry, A.R.I.B.A., was killed in action in France on April 6. Lieut. Thomas P. Bonsor was the son of Mr. Paul Bonsor, of Lark Hall, Fordham, Ely, a retired architect. He served his articles with his father, then practising in Cambridge. He was afterwards for a time architectural assistant under the Herefordshire County Council, and later architectural assistant in the Small Holdings Department of the West Riding County Council at Wakefield. He passed the qualifying examination and was elected Associate of the Royal Institute in 1912. Joining the Hereford Regiment almost at the commencement of the war, he later secured a commission in the Shropshire Light Infantry. He went to France at the beginning of the present year. Mr. T. V. Steele, his immediate chief under the West Riding County Council, pays a tribute to the ability of the late officer and says: "I personally feel that I have lost an invaluable helper and friend." His young widow writes: "My husband was attached to a trench mortar battery. . . . His loss is a very great and real one to me, but I am proud to have been the wife of so gallant a soldier."

The death is announced of Mr. Charles Chambers, road foreman to the Maidstone Rural District Council. He had been in the council's employ forty-five years, and had served under six surveyors.

The greatly-increased cost of freightage of Guernsey granite has brought the price of Guernsey granite to towns in Kent to 22s. 6d. and 23s. 6d. per ton—a price which raises the cost above that of tarmacadam.

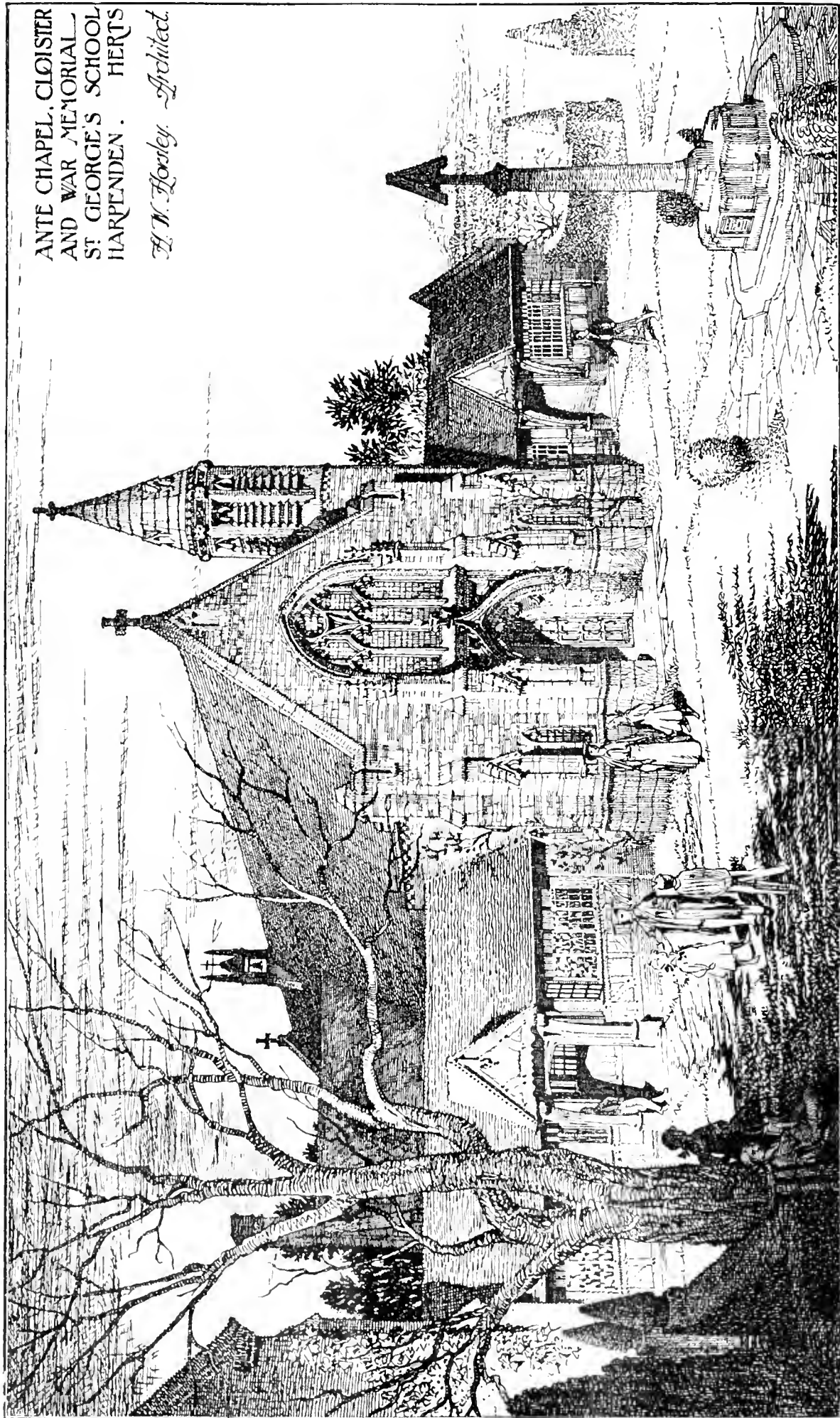
The first stone of the work of rebuilding the great central tower of the Abbey of Paisley was laid on Thursday. The tower is the gift of Mr. Robert Allison, of Rosemount, Castlehead, Paisley. This tower forms part of the scheme of restoration which has been going on at the Abbey for the last three years, and which, when completed, will form the most notable restoration which has yet been made in Scotland.

Lieutenant-Commander Lancelot Freyberg, R.N., who was killed on April 27, aged 31, at the sinking of the "Russell," was born in Kensington in 1885. He was educated at Mr. Lynam's Oxford and Marlborough College, and entered the Navy as a Britannia cadet in 1900, attaining the rank of lieutenant-commander in October, 1915. He was the younger son of Major Herbert Freyberg, M.S.A., and Mrs. Freyberg, of Cromwell Place, Kensington, and Constable's Cottage, Farnsworth.

The Hotel de Ville, at Lille, which the Germans report has been destroyed by fire, was almost rebuilt in 1846, but retained fragments of the previous fifteenth-century edifice. At the north-west angle still existed a Gothic chapel and turrets in brickwork remaining from the ancient palace of the Dukes of Burgundy, built by Jean-sans-Peur, and inhabited by the Emperor Charles V. This older portion included the Council Chamber, which was decorated with paintings by Arnold de Waux, 1726. The uppermost floor of the Hotel de Ville was arranged as a museum and art gallery. Probably the valuable paintings, like the books in the famous library, were rescued by German soldiers, and forwarded to Berlin.

ANTE CHAPEL, CLOISTER  
AND WAR MEMORIAL  
ST GEORGE'S SCHOOL  
HARPENDEN. HERTS

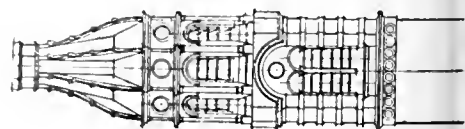
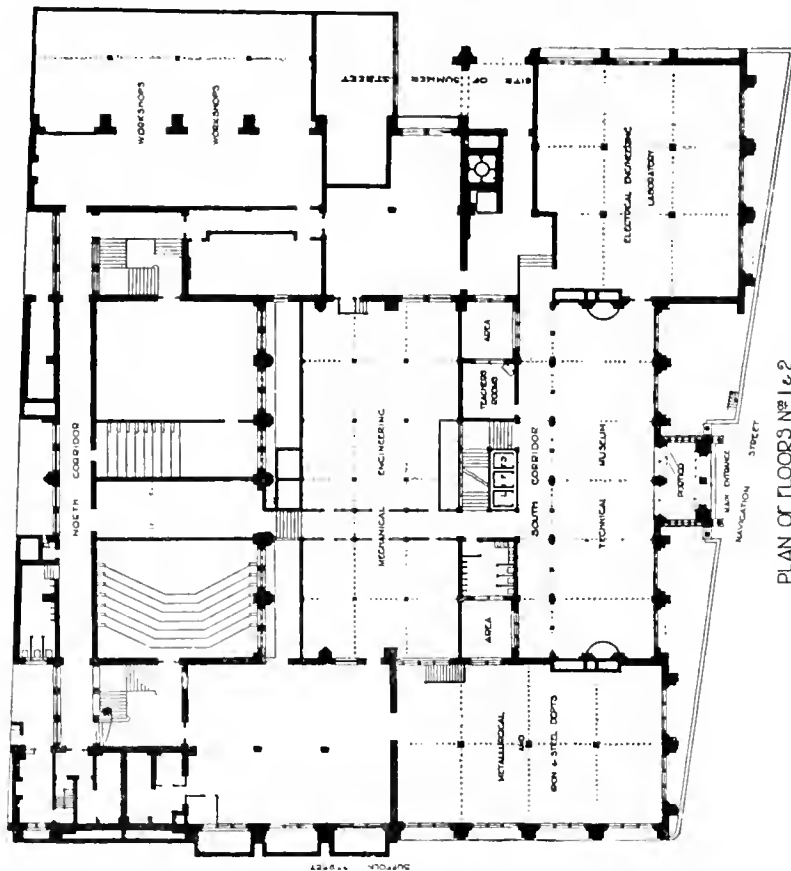
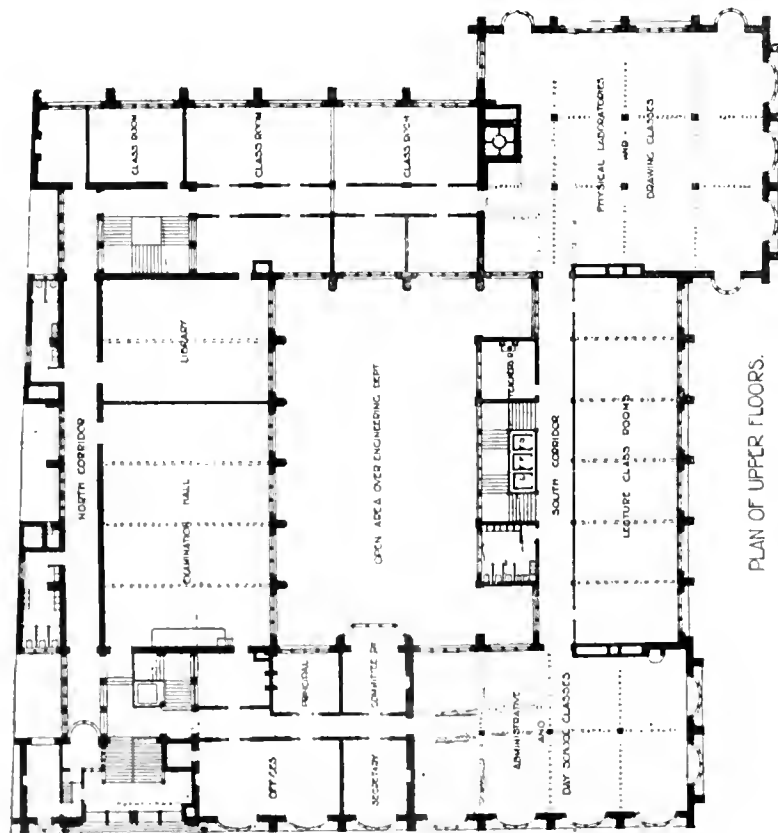
*H. W. Horsley. Architect.*





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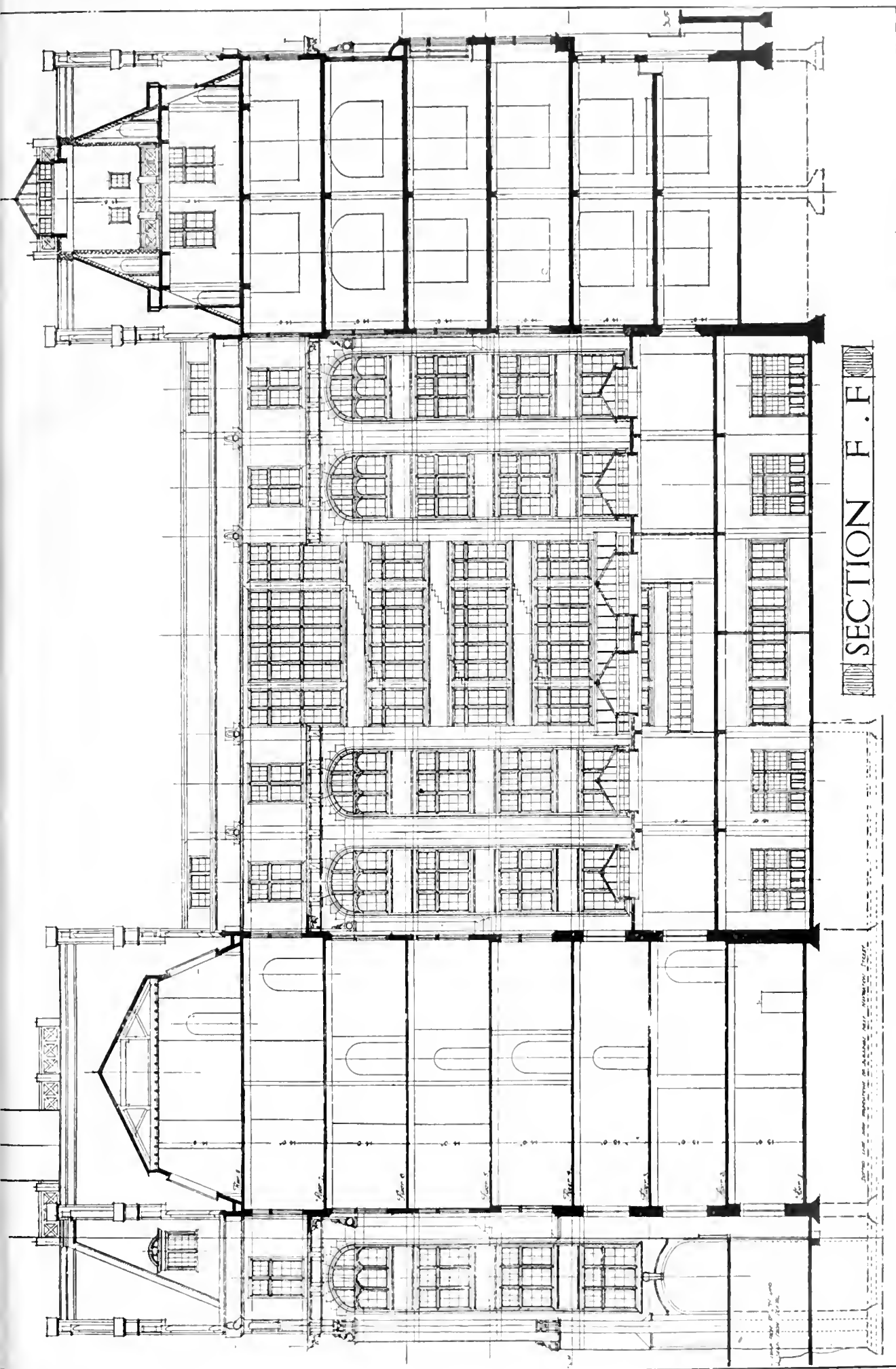
THE BUILDING NEWS, MAY 10, 1916.



# BIRMINGHAM TECHNICAL SCHOOL EXTENSION



MESSRS NICOL AND NICOL A.R.A.



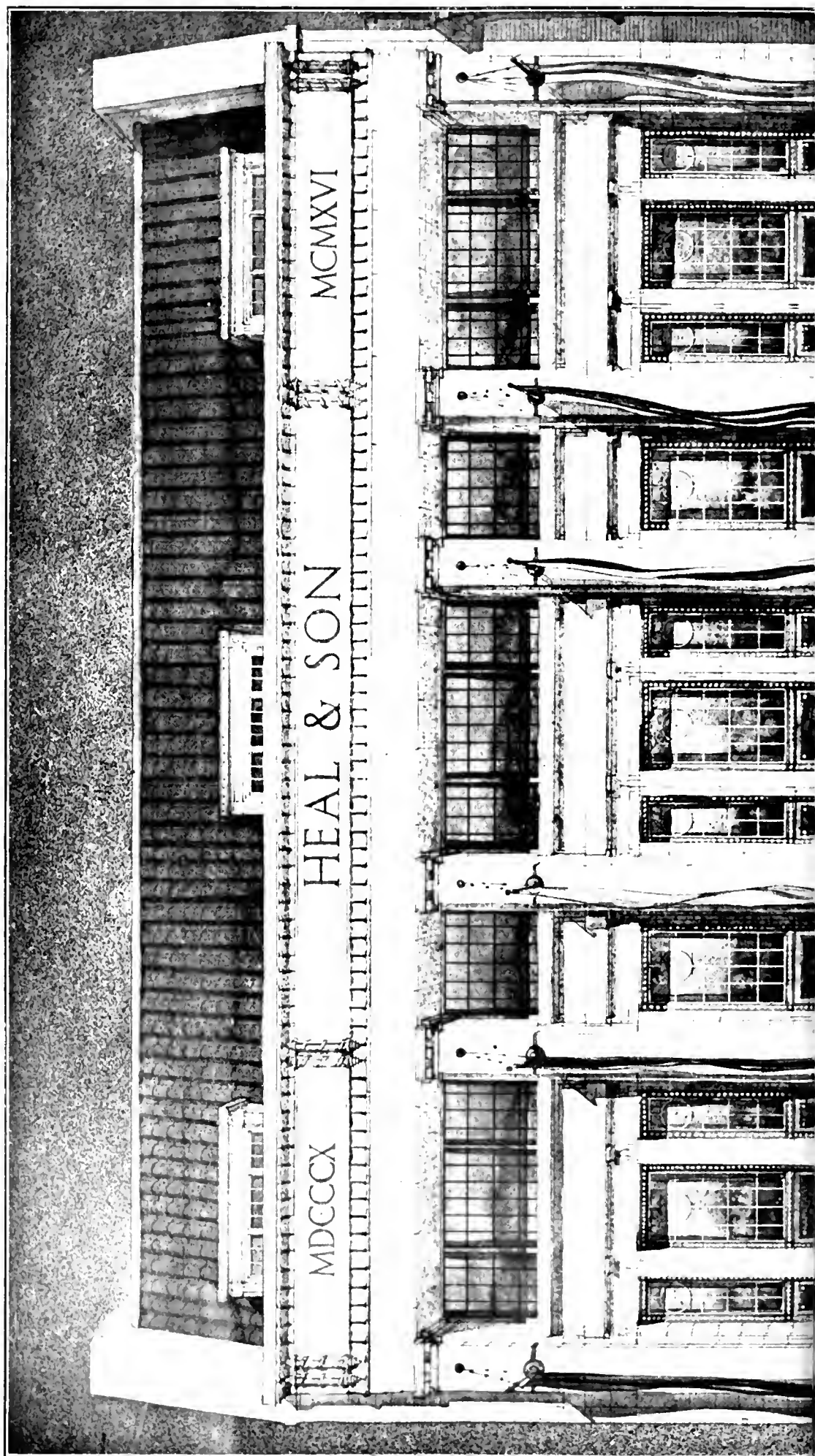
SECTION F.F.

MUNICIPAL TECHNICAL SCHOOL NEW EXTENSIONS, NAVIGATION STREET, BIRMINGHAM.  
 Messrs. Nicol and Nicol, A.A.R.I.B.A., Architects.

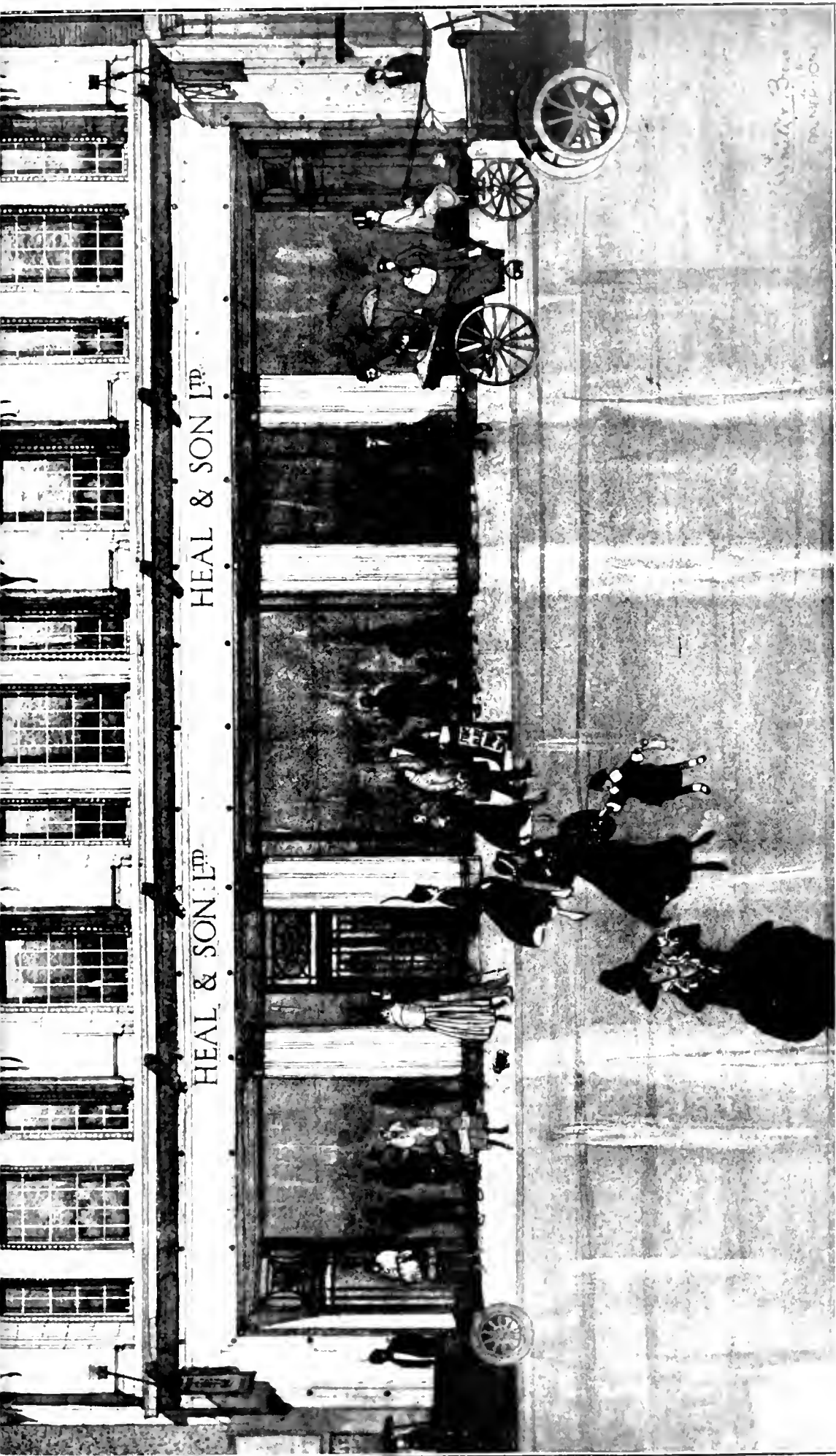




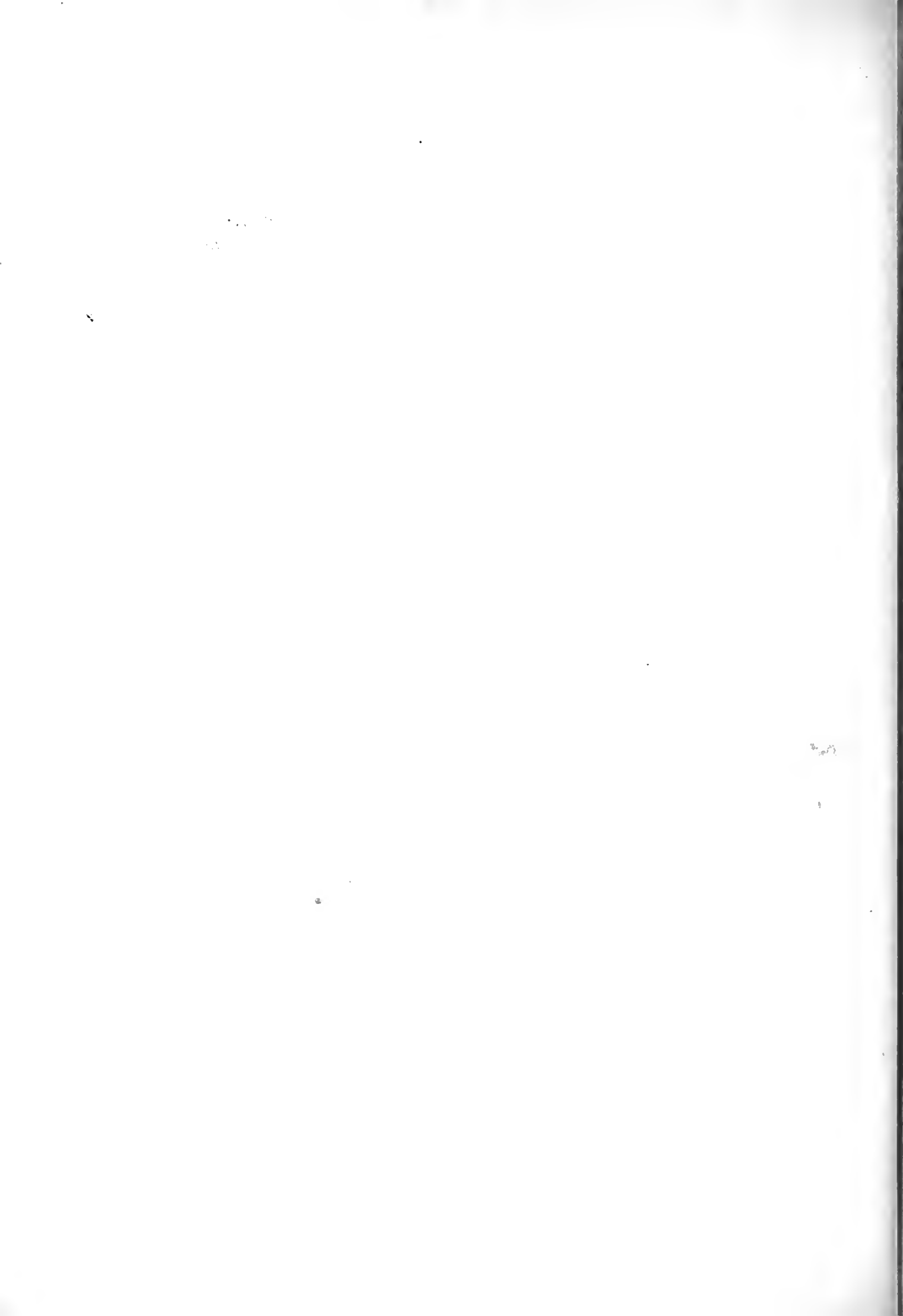
THE BUILDING NEWS, MAY 10, 1916.

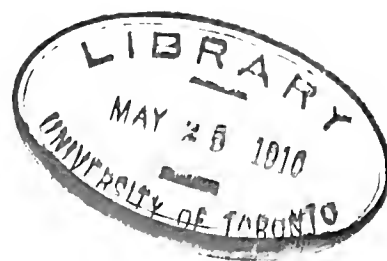






NEW PREMISES, TOTTENHAM COURT ROAD, W., FOR MESSRS. HEAL AND SON, LIMITED.  
Messrs. SMITH and BROWER, Architects.





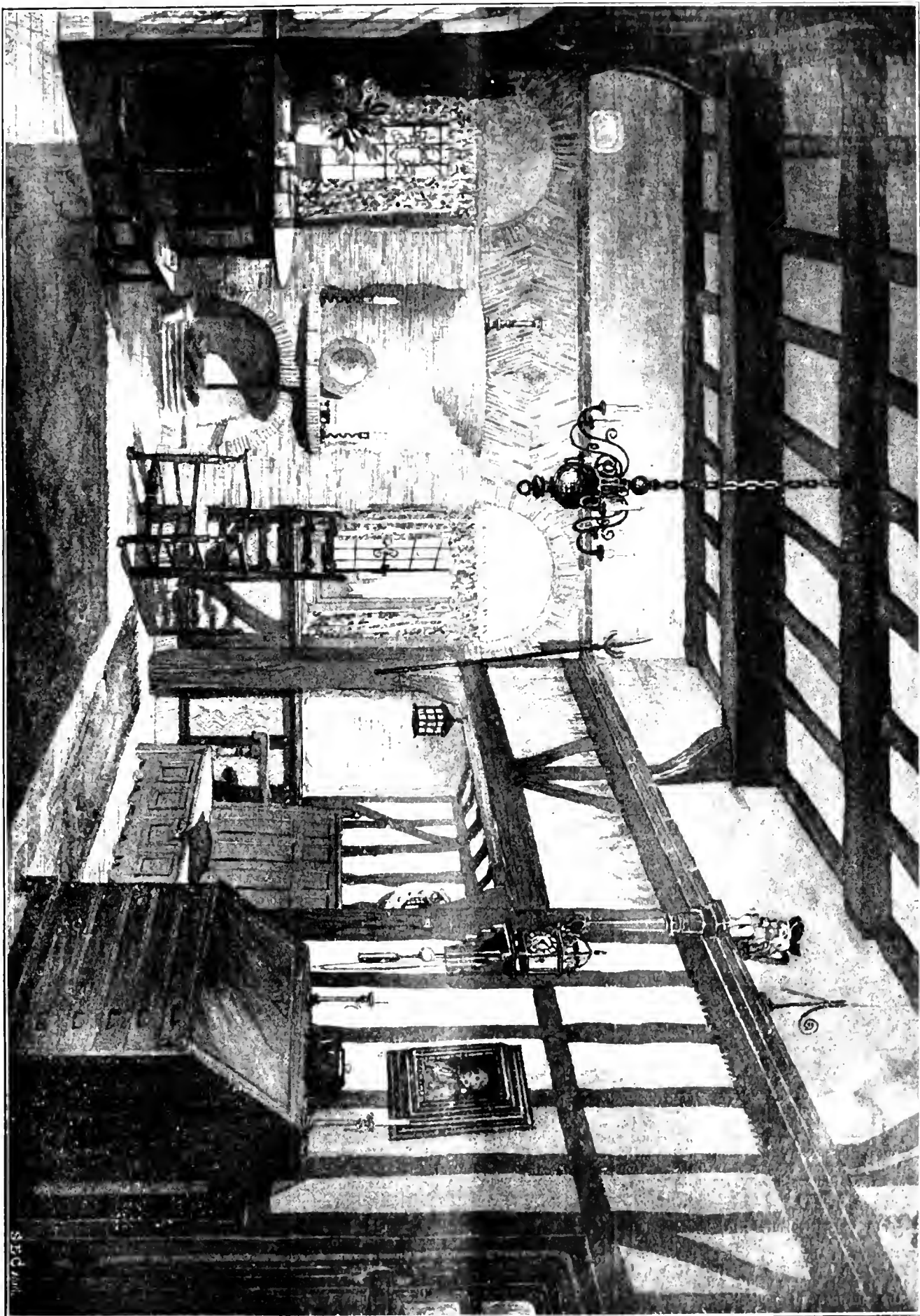


BRIDGE AND ISLAND BUILDINGS, MOUNT MELVILLE,









SMOKING ROOM, "DAILY CHRONICLE" OFFICES, FLEET STREET, E.C.—Messrs. Castle and Wain, Architects.

SECTION

## A SCHEME FOR THE DEVELOPMENT OF AGRICULTURAL LAND.\*

By FRANK NOEL KEEN.

Barrister-at-Law of the Parliamentary Bar.

Among the changes most urgently needed by our country in this era of change is some new means of developing agricultural land, and of securing a larger home production of food. Stated shortly, the main idea of the scheme I put forward is that agriculture should be organised in units of so large a size as to command the most efficient and economical administration, but so regulated as to give to each man working in the unit an incentive of profit-sharing and proprietorship comparable with that which stimulates the efforts of the small-holder. I suggest that as much as can conveniently be acquired of the agricultural land within a certain area of country should be owned, controlled, and managed as one co-operative concern in which the people working upon the land would have the predominant power and interest to shareholders. The farming business is one of more than average risk. Uncertainties of climate, and visitations of the diseases to which both vegetable and animal life are subject, bring a large element of speculation into many farming processes. The organisation of such a business upon the largest scale would tend to some extent to average the risks (because it would distribute the total output over a greater variety of products) and would give the undertaking a capital large enough to carry it safely through periods of depression, in which the capital of a small farmer might be engulfed. The risks inevitably involved in the business make the small farmer a man of conservative habit. He can ill afford to increase those risks by departing from customary methods of cultivation. Nor can he afford to make such changes in the use of his land as will entirely exclude any branch of production which he regards as essential to his farming unit. The adoption of a very large unit of management facilitates experiment and change. A large undertaking could more easily grapple with temporary difficulties, such as the need which has been experienced during the present war for the training of new skilled labour, the employment of women, the obtaining of occasional assistance from soldiers and civilians, and the introduction of labour-saving devices, to counterbalance the temporary shortage of labour caused by the withdrawal of recruits for war service. It would be interesting to see a statement of all the different kinds of industry or business that can be carried on in conjunction with agriculture; but I have not the necessary equipment for its compilation, and I doubt whether the imagination is capable of making in advance an exhaustive list which would not need supplementing when an undertaking had actually been established, and was prepared to entertain the idea of carrying on any such industries or businesses as branches of its work. Among the most obvious, however, are dairies, butter factories, cheese factories, bacon factories, jam factories, beet sugar factories, flour mills, seed crushing, egg preserving, fruit preserving, cider making, basket making, sawmills, manufacture of boxes, hoops, and other wooden articles. Besides industries of this kind there are various services of the utmost importance to the development of agriculture whose introduction and successful working may be rendered possible or greatly facilitated by such a scheme as I am proposing. Perhaps the most important of such services to mention is motor transport. Taking, for purposes of illustration, a small town surrounded by a large belt of agricultural land, it is pretty obvious what a stimulus would be given to agricultural production, and what a convenience would be afforded to the traders in the town and to the population of both town and country, if a large service of trade motor vehicles were provided for the purpose of collecting agricultural produce from the whole belt of country within ten miles from the town, and carrying

out into the country materials and machinery required for agricultural purposes and goods bought in the town by the people in the agricultural area. Such a service could well be provided by an organisation of the type I am suggesting. Among the other services which could be rendered by such an organisation to the interests of agricultural development are the provision of better facilities for the storing, preservation, grading, and packing of agricultural produce, for the slaughtering of animals, for the controlling of game and the destruction of vermin, for improving the breed and dealing with the diseases of animals, for getting low railway and canal charges, for selling commodities to advantage and obtaining new markets and channels for sale, for regulating sales as between local purchasers and dealers at a distance, for studying the needs of consumers, for securing speed in the despatch of perishable goods to consumers, for regulating stocks and minimising disadvantages due to fluctuations of price, for effecting insurances, for procuring supplies of seeds, artificial manures, feeding stuffs, implements, and labour-saving machinery, for testing the quality of materials purchased and agricultural products, for the training of agricultural workers, for circulating knowledge and information affecting agricultural purposes, for banking, finance, account keeping, and the recording and preservation of statistics, for watching and appealing against rates, taxes, and assessments, for the drainage and reclamation of agricultural land, for receiving sewage and disposing of it by irrigation, for economy in the arrangement of fences and hedges, for the extension of the use of electricity and the telephone, and the production of electric and other power, for the housing of agricultural labourers.

### PUBLIC OWNERSHIP AND MANAGEMENT.

I have next to consider the body by which the undertaking should be owned and conducted. This need not necessarily be the same in all cases. There is an advantage in having different types of organisation to discharge similar functions in different localities, because their relative merits and defects can then be compared on the basis of actual experience. There is something to be said in favour of the idea of putting an enterprise of this kind into the hands of a body representative of the public. But there are disadvantages, as well as advantages, in placing such a concern entirely under public ownership and management. It appears to me that a parliamentary company is the most useful form of organisation for the purpose in view. Such a company, depending as it does upon the passing of a private Act of Parliament for its creation and the original definition and subsequent variation of its powers and constitution, is subject to large possibilities of criticism and limitation in the public interest, and yet receives a charter which enables it, within defined limits, to give free scope to its energy and enterprise in the pursuit of the particular interests upon which it is bent. Some of the purposes which it has been suggested that the company might carry out come within the scope of the Development and Road Improvement Funds Act, 1909; but as the company would not answer the description of a "company not trading for profit" it would, in the absence of special powers, be ineligible for a grant or loan from the Development Fund under that Act. It needs no wild stretch of imagination, however, to think that the scope of that Act might be extended so as to enable assistance to be given to companies working for agricultural development under the safeguard of Parliamentary control. It seems not unreasonable to hope that a company commanding so large an area of agricultural land, and carrying on operations of the kind and upon the scale I have described, would be able to absorb from time to time, and train, set to work, and settle upon the land a considerable number of men discharged from the fighting services during or after this war, and other unemployed men for whom there may be a difficulty in finding channels of employment. While coming to the conclusion that company administration is the best to adopt, I think it is most desirable that the company should not be run in the interests of

a group of outside capitalists, but that a large financial interest, and, if possible, the predominant interest in the concern, should be vested in those who are engaged in active employment under the company. By this means I should hope to secure the output of the best work for the company by all its farmers, labourers, and other employees, and, at the same time, a great improvement in the position of the labourers. The particular type of co-partnership arrangement might vary in different cases, but one that I suggest might be tried is to engage all the employees upon the terms that one-tenth part of all remuneration received for their services should be returned by them to the company by way of payment for the allotment of ordinary shares or stock of the company. By this plan, in course of time, the bulk of the ordinary capital would probably come to be held by the employees, assuming that they did not get rid of their interest to outsiders. In order to prevent the last-mentioned contingency from arising, some embargo would need to be put upon the power of the employees to dispose of their shares or stock. Perhaps it might meet the situation to provide that every employee, so long as he remains in the service of the company, shall retain not less than one-fourth of the amount of the shares or stock taken by him from the company, and that no employee shall transfer any share or stock except to another employee. With a view to further reducing the risk of control getting into the hands of outside capitalists, it might be stipulated that the voting power at general meetings should be confined to the holders of ordinary shares or ordinary stock, and that no one should be qualified to hold ordinary shares or stock unless he is an officer, employee, or tenant of the company, or is resident in the area within which the company is empowered to acquire land.

### THE QUESTION OF FINANCE.

The means by which the company should be financed and the necessary capital should be provided, is obviously a matter of great importance, particularly in view of the limited possibility of raising money through ordinary investing channels during the war and for some time after its termination. The principal need of capital in the initial stages would be for the purchase of the land which the company is intended to administer. I suggest, however, that for a great experiment of this kind, designed to meet a national need, and fraught with such large possibilities of promoting agricultural prosperity, the public spirit of landowners might be successfully appealed to, and they might be induced to put their lands together into the common stock without immediate payment of money. The tenant farmers might also be willing to take payment in fully paid shares on the basis of a reasonable valuation of their interests, a collateral arrangement being made in suitable cases for the farmer to enter the service of the company as farm manager at an agreed rate of remuneration and for a fixed minimum period. In the case of both owners and tenants who cannot be prevailed upon to co-operate financially, the company would have to face the question of buying them out in cash, agreeing the purchase money where possible, and the control of the particular land concerned is of importance to the development of the company's scheme as a whole, the company might seek from Parliament compulsory powers of purchase. The company might be granted the right of obtaining compulsory powers of acquiring land and interests in land by Provisional Order of the Board of Agriculture, confirmed by Parliament, just as a sanitary authority may, by Provisional Order of the Local Government Board, obtain land compulsorily for sanitary purposes. Apart from the question of special arrangements for providing the purchase-money for property to be acquired, a certain amount of financial support for the company's general purposes might, as I have already indicated, be sought from the development fund, and from local authorities. A further amount might be sought from people having a general interest in agricultural questions, and from local people specially interested in the general welfare and development of the area with which the

\* From a paper read at the ordinary general meeting of the Surveyors' Institution, held on Monday, May 8, 1916.

company's undertaking would be concerned. A certain amount of capital might also be raised temporarily from bankers or other financiers by short-term loans or other methods, and repaid gradually out of the growing capital funds contributed by the employees of the company from time to time. Assuming that the necessary capital were provided by these several means, and that the land were acquired at fair prices, and that the undertaking were not loaded with any capital charges unrepresented by assets of real value, there seems every reason for expecting that with capable and honest management an adequate financial return would be secured. The company would be intended to carry on in combination various types of business which would be capable of being run profitably under the ordinary plan of separate ownership. Is it not a reasonable inference that they must be capable of being run still more profitably if advantage is taken of the economies in expenditure and the mutual assistance between different departments which become possible when all are carried on together as a single organisation, and if the agricultural output of the company's area is increased by the systematic and scientific methods of management which so large an organisation would be able to apply? The idea being a novel one, nothing can demonstrate the possibility of success except actual experiment, and for this reason I suggest to those who are more familiar than I am with the practical business of dealing with landed estates that they should endeavour to secure that experiments of this kind are made and conducted on an adequate scale and under favourable auspices. The element of profit-sharing the scheme contains is calculated to stimulate to the full the activities of the workers. The large-scale organisation on which it is based would give those activities a good field in which to operate. Thus there would exist a natural incentive for the best output of work in all branches of the concern, while the combined management of one great area would afford the readiest facilities for bringing quickly into operation changes of method required in the national interest, and particularly changes that necessitate increased outlay of money, such as the breaking up of poor grass lands and their conversion to arable purposes. If it is feared in any quarters that company management would tend too much to commercialise the countryside, and to take away from rural life its attractiveness, I think that fear may be dispelled. If it were a case of a group of international financiers coming to exploit our agricultural land under the exclusive influence of a selfish love of gain there would be need for apprehension. But that is not at all the sort of idea I am seeking to place before you. What I have in my mind is an institution, watched and controlled by Parliament, in which the people engaged in rural avocations would co-operate together, so that their joint efforts should be consciously directed to the best advancement of their own material interests and of those of the nation at the same time. Such an institution ought not to injure but to benefit country life on the social, moral and aesthetic sides. Both the greater monetary resources it would make available, and the greater opportunities it would provide for association and intercourse, should lead to the development of a fuller and happier life as well as a more comfortable material environment.

At a meeting of the City Court of Common Council on Thursday it was resolved to obtain expert opinion on the working and maintenance of the Tower Bridge, the preliminary cost of which is estimated at £210. Mr. Redding, chairman of the Bridge House Committee, said he hoped the result of that inquiry would be a permanent saving of many thousands.

The Weston-super-Mare Grand Pier Bill, which empowers the sale of this undertaking, and which has passed the House of Lords, was before the Chairman of Ways and Means Committee on Thursday as an unopposed measure. In answer to the Chairman, the agents said there was not at present any prospective purchaser. The Bill passed the Committee, and was ordered for third reading in the Commons.

## Our Illustrations.

### BRIDGE AND ISLAND BUILDINGS, MOUNT MELVILLE, ST. ANDREWS, N.B.

The illustration, from the architect's Royal Academy drawing, shows a portion of an artificial lake. The island has a natural surface level somewhat below the water level of the lake. It was inadvisable to raise the soil surface owing to the existence of some well-grown trees. The wall and buildings round the shore help to screen this difference of level. Mr. Paul Waterhouse, M.A., is the designer of the bridge and other buildings, which consist of the bridge-house (with an upstairs room), a loggia, a boat-house, a summer-house, etc. The bridge is of stone, but the walls, buildings, etc., are largely in brickwork, with a coat of harling on the exterior.

### MESSRS. HEAL AND SONS' PREMISES, 194-198, TOTTENHAM COURT ROAD, W.

This is a reproduction of a water-colour drawing now at the Royal Academy, and shows that portion of the Tottenham Court Road front being rebuilt in connection with the reconstruction and enlargement of these premises at present in progress. It is constructed of Portland stone, except the ground story, for which Hopton Wood stone is being used; the shop windows will be in walnut, other windows in cast iron, and sundry metal work in bronze. The contract, which was started before the outbreak of war, includes also the erection of bedding and other factories in the rear. The general contractor is Mr. F. G. Minter, of Putney, and Messrs. Smith and Brewer are the architects.

### MUNICIPAL TECHNICAL SCHOOL, BIRMINGHAM: NEW EXTENSIONS.

On April 26 last we gave a bird's-eye view and one of the main elevations of this great municipal technical school, and a description then appeared giving many particulars of the undertaking. To-day we publish the two chief plans, typical of all the other floors, excepting some special features in the basement. We also give the main cross section, showing how top light is used for the ground-floor building in the courtyard, and also how copiously the several upper-floor classrooms, etc., are lit from this quadrangle. Other illustrations will appear next week to complete our series of the building, which is of more than local interest. Messrs. Nicol and Nicol, A.R.I.B.A., of Birmingham, are the architects.

### ANTE-CHAPEL, CLOISTERS, AND WAR MEMORIAL, ST. GEORGE'S SCHOOL, HARPENDEN, HERTS.

The sketch shows an extension of the existing school-chapel, the lines of which are carried on with connecting wing cloisters, one of which could be used as an open-air classroom. The work is suggested to be executed in Luton grey brick facings and freestone, and the cloisters constructed with oak timbering left natural colour after the lime whitening is brushed off. The paving to ante-chapel is to be carried on from the existing work, and random stone is to be freely used for the paths and memorial. The gardens in the vicinity of the extension are to be laid out as shown, and surrounded with clipped yew hedges. The War Memorial is intended to perpetuate the memory of old St. George's boys who have fallen in the war. The execution of this work will be left until after the war, and the design will be subject to such deviations as may become expedient. The drawing now illustrated is in this year's Royal Academy exhibition. Mr. H. W. Horsley is the architect.

### THE SMOKING ROOM, "DAILY CHRONICLE" OFFICES, FLEET STREET, E.C.

The smoking room is on the fourth floor of No. 12, Salisbury Square, Fleet Street. This room has been executed in old Dutch bricks and old ship timbers, specially selected. The room is intended to be used as a smoking room for the heads of the various departments, and is to be furnished with old furni-

ture in character. The outlook from the main windows is a very fine one, looking on to St. Bride's Church towards the City; the windows are metal casements, the glazing being specially designed fire-resisting glazing following the lines of old leaded windows. From this room doors lead on to a balcony running the whole of its length. The interior effect is a very pleasant one, appearing sharply in relief from the severe lines of the rest of the work. Messrs. A. Vogel, Ltd., of Knightsbridge, were the builder. Messrs. Castle and Warren are the architects.

### PROFESSIONAL AND TRADE SOCIETIES.

**ARTISTS' BENEVOLENT INSTITUTION.**—The annual dinner of the Artists' General Benevolent Institution was held at the Hotel Cecil on Wednesday evening. Lord Redesdale occupied the chair, and was supported, among others, by Sir Aston Webb, R.A. (Treasurer), Sir Ernest George, A.R.A., and Mr. Douglas G. H. Gordon (Secretary). Proposing the toast of the evening, "Prosperity to the Artists' General Benevolent Institution," the Chairman said that at the present time works of art were among the first luxuries with which wealthy men were compelled to dispense. Of all the professional men, none had offered themselves so ungrudgingly as a sacrifice in this war as the artists. He had been told that every Academician's son was at the present moment in some way or other shouldering a rifle, manning the trenches, and setting an example of courage and patriotism. Lord French's address to the Artists Corps, in which he referred to them as the finest soldiers in the Army, mentioning that they had suffered more than any other regiment, was an inspiring one, and artists had every reason to be proud of it. The Council of the Institution was a generous and wise one, and had given more than twice the normal amount that was distributed in peace times. Sir Aston Webb announced that the list of collections and donations had reached a total of £3,124.

**EDINBURGH ARCHITECTURAL ASSOCIATION.**—Members of the Edinburgh Architectural Association and their friends, to the number of about fifty, paid a visit on Saturday afternoon in last week to Bruntisfield House (by permission of Vice-Admiral Sir George J. S. Warrender, Bart., K.C.B.), and to Grange House (by permission of Colonel Kidston Kerr, C.B.). The leader of the excursion was Dr. Thomas Ross, F.S.A.Scot., of Edinburgh, who submitted a plan of Bruntisfield House, and gave a description of the architectural features of the building. Mr. Moir Bryce gave an interesting history of the Warrender estate. Votes of thanks were passed, on the motion of Mr. Maclean, A.R.I.B.A., president of the Association.

Mr. Henry Graham, Harrington, has been appointed surveyor and sanitary inspector to the Cokermouth U.D.C., in succession to Mr. F. J. Reilly, who has enlisted.

Foundations and walls of a Roman villa, together with pieces of Roman pottery and an oyster shell, have been found during digging operations in two gardens in Springfield Road, Brighton.

The building of fourteen cottages for the urban council of Killarney has just been completed by Mr. Fleming, contractor, in accordance with plans prepared by Mr. G. A. E. Hickson, architect, at an estimated cost of £3,330.

Mr. David Haughton, who died, in his 90th year, on the 27th ult., at Barton-on-Humber, was for thirty-six years surveyor and inspector of nuisances in the town, of which he was a native. He was a deacon of the Congregational church, and was for twenty years Sunday-school superintendent.

The urban district council of Selby have again considered the question of providing further working-men's houses in view of new industrial developments, and resolved that, subject to the sanction of the Local Government Board, tenders for the erection of sixty-one houses in Flaxby Road and on East Common be accepted.

## Corrente Calamo.

We are sorry the House of Commons resolved on Monday to save daylight by altering the clock. Since 1907, when the late Mr. Willett first started this crusade, it has been our lot to follow the discussion more closely than most, and we have seen no reason to change our opinion from the first. There has been much controversy, as elsewhere, in the *ENGLISH MECHANIC*, which will be found on pp. 126, 154, and 583, Vol. 86; p. 117, Vol. 90; pp. 284, 311, 347, 404, Vol. 95; pp. 45, 62, 89, 372, 441, Vol. 94; and pp. 159, 179, and 424, Vol. 95. The letters which have appeared in the *ENGLISH MECHANIC*, all written by men who really know what they wrote about, have, with two exceptions only, the late Mr. Willett and one other, been unanimously adverse to altering the clock—not necessarily adverse to "daylight saving." It was pointed out years ago in the *ENGLISH MECHANIC* that the object avowedly sought might be easily and sensibly effected by requiring that during certain months all Government offices, banks, licensed houses, and all institutions working during certain statutory hours should open and close one hour earlier; that the first postal delivery and the last general mail collection should take place one hour earlier; and that railway companies should run all trains one hour earlier. The habits of industrial life are even now chiefly regulated by the principal postal deliveries and collections, and by the hours of business in banks and Government offices. If these hours were altered the industrial world must of necessity adapt itself without self-deception to the experiment—for it is nothing more—we are about to try. When the Daylight Saving Bill was last before Parliament, five years since, the *Times* said, on May 5, 1911: "If public opinion is ripe and eager for the change, no such Bill is necessary; if it is not, no such Bill ought to pass."

The attempt to remedy an evil which no one has yet proved is an evil by a remedy which is no remedy reminds one of similar flightiness in our past history. There was Lord John Russell's "No Popery" Bill, which even the proverbial bitterness of religious bigotry failed to galvanise into operation. Again, in 1786, the nation was panic-stricken about the National Debt, small as it was then compared with the big total it reached thirty years later, and insignificant in comparison with the huge sum it stands at to-day. Reason proved powerless to stem the panic, and Pitt quieted the people by a juggle. He succeeded in persuading Parliament that a scheme devised by Dr. Price, which established a new sinking fund, which so far as it differed from former sinking funds did so for the worse, would put into the public creditor's pocket great sums not taken out of the pockets of the taxpayer. The country, terrified by a bogey, was calmed by a trick; and Pitt was hailed as the greatest financier of all times. It was not till 1813 that the fallacy of the scheme was exposed by Dr. Hamilton and admitted.

The annual exhibition of the Royal Scottish Academy, opened at Edinburgh on Saturday, contains amongst its principal works John Lavery's immense and ambitious canvas, "The Studio of the Painter," a half-length portrait of the Earl of Moray, by the President, Sir James Guthrie; and "Renaissance," an allegory of Belgium's struggle, by George Clausen. Other exhibits of great interest are J. S. Sargent's portrait of F. J. H.

Jenkinson, Oliver Hall's "Sussex Stone Quarry," Ogilvy Reid's "The 25th Belgian Regiment After a Night's Work," Richard Jack's "Homeless," and John Reid's "Sunny Cornwall." Among the notable landscapes are those shown by A. K. Brown, D. V. Cameron, J. Ladenhead, R. W. Allam, and Whitelaw Hamilton. Excellent portraits are sent in by E. A. Walton, Robert Gibbs; and the sculpture includes the symbolic piece of statuary "1914," by Percy Portsmouth, and "Grief," by James Wingate. Louis Raemakers has lent five-and-twenty vigorous drawings, the originals of some of his famous cartoons, and Spenser Pryse shows several lithographs done within the zone of war.

Quartermaster Sergeant-Instructor E. Handley Read, of the Machine Gun Corps (and late of the Artists' Rifles) has just completed a large series of water-colour drawings depicting the trenches and scenes familiar to our men in the British firing line. They are drawn with great accuracy of detail, and the artist has been helped by minute descriptions and material supplied to him by officers in different sections of the front. Q.M.S.I. Handley-Read's intimate pre-war knowledge of France and Flanders has also been of much assistance in rendering the local colour of the spots he has painted. An exhibition of these pictures is to be opened on May 12 at the Leicester Galleries, Leicester Square, and should have a wide appeal just now.

In the *Guardian*, Mr. F. de P. Castells, of Ashdown House, Dartford, replies to Canon J. W. Horsley, who recently expressed grave doubts as to whether Sir Christopher Wren was ever a Freemason. The assertion rests on the authority of Anderson and Preston, both of whom the Canon discredits, but Mr. Castells points out that Anderson was the official historian of the first Grand Lodge of England, whose work, both in 1723 and 1738, was duly submitted for examination and approved, and that Preston was the author of a history which has been the fountain from which the Masons of two continents have been drinking freely for the last hundred years. To Mr. Castells, however, it seems that the question is settled by the fact that there are three distinct reports of Wren being a Mason, emanating from three separate sources, and quite unconnected with Anderson's "Book of Constitutions."

Mr. Castells continues: "Aubrey's testimony, written in 1691, was a memorandum made on a MS. which remained private property until it was published in 1847. Preston, far from repeating Anderson's words, has handed down what he found in 'the records of the Lodge of Antiquity' in 1774, that lodge being the most important of those dating from before 1717. According to the said records, in 1663 and after, Wren 'attended the meetings regularly,' and 'during his presidency he presented to the lodge three mahogany candlesticks,' which were being used in the way known to Masons at the time when Preston wrote. The evidential value of those candlesticks is very great, while the statement as to the records is decisive, for the members of the Lodge could easily have disproved what their W.M. wrote if it was not true. Indeed, we are reduced to two alternatives—either Preston lied flagrantly, or else there really was contemporary documentary evidence of Wren's connection with the fraternity, in which case Anderson's statements in 1738 would seem to be fully borne out. Furthermore, when Wren died

early in 1723, two London newspapers, the *Postboy* and the *British Journal*, had paragraphs about him in which he was referred to as 'that worthy Freemason.'

"It is because there are at least these three really independent and yet concurrent lines of evidence," says Mr. Castells, "that not a few of us feel justified in claiming (*malgré* Gould) that the world-famous architect of St. Paul's Cathedral was a member of our order. The fact appears to be as well established as any of the facts that depend on external testimony for their credibility. Two objections have been advanced against this—the 'Book of Constitutions' of 1723 makes no mention of Wren; and the dates given by Anderson and Aubrey do not agree. To the first I answer that it is preposterous to look for Wren's name where the writer is only speaking of the Kings who were Masons. As to the second, the different dates do indeed," the writer admits, "create a problem, but this problem arises from the uncertain meaning of Aubrey's language. Anderson and Preston agree in making Wren the President of the Fraternity in 1663, when he was thirty-one years of age; but what could Aubrey mean in writing in 1691 of Wren's 'adoption as a Brother' in the St. Paul's Lodge—that is, 'The Lodge of Antiquity' of later days? The corrections in Aubrey's Memorandum show that he felt somewhat uncertain of the accuracy of the terms he employed; he must have known that the Freemasons had a phraseology of their own."

A kindly correspondent sends us some details of the building trade in the United States during February last, as compared with February, 1915, extracted from the *Building Age*, which, while showing a gross increase in 97 cities of 17.5 per cent., yet reveal the hindrance high prices of materials have been to activity. The striking feature of the situation is the showing of the eastern section of the country in the planning of new work, as compared with a year ago, largely due to the heavy shrinkage reported by four out of the five boroughs of Greater New York. Not a little building work, however, has been held in abeyance, if not altogether abandoned, by reason of the tremendous advance in prices of all forms of structural steel, brick, and other building materials, although in some cases plans have been further modified so as to use concrete. Notwithstanding this condition, however, reports from 97 cities for February show an increase of 17½ per cent. over the same month last year. Of the number reporting 73 show increases and 24 decreases.

Of the four sections or zones into which the country is divided, the eastern cities show a loss of 3.15 per cent. as compared with February, 1915, there being 35 cities reporting. From the middle section of the country 31 cities reporting show 24 increases and seven decreases, with the resultant gain over February last year of a trifle more than 30 per cent. Largely increased activity is to be noted in Chicago, Detroit, Milwaukee, St. Louis and Toledo. There are 19 cities reporting from the southern tier of States representing a gain of 35.6 per cent. in the new work planned in February, as contrasted with the same month in 1915. Important increases are found in Baltimore, Louisville, Nashville, and Washington. In the extreme western



section of the country, and including the territory west of Denver, the 12 cities reporting show increased planning of work, the gain over February last year being 41.6 per cent.

The following table, compiled by Messrs. Robert Ingham Clark and Co., Ltd., shows the great and general advance in prices since the commencement of the war, not only of all raw material used in varnish and enamel manufacture, but in the cost of every description of package:—

Raw Materials —	Advance, Per cent.
Hard Gums .....	25
Linseed Oil .....	50
American Turpentine .....	50
Zinc Oxide .....	185
Vegetable Black .....	43
Litharge .....	90
Methylated Spirit .....	85
Driers and Chemicals used in manufacture .....	100
Stationery, etc. ....	50
Paper .....	75
Fuel:—	
Coke .....	90
Coal .....	39
Packing:—	
All tins .....	80
Crates .....	100

Freights and insurance charges have also advanced from 50 per cent to 100 per cent, and materially increase foreign and home coast-borne costs. This is a formidable list, and it will be seen that all the principal factors are affected. It therefore needs no profound knowledge of accounts and costing to realise that the 10 per cent. advance of last June is now entirely inadequate to meet the present position.

#### LEGAL INTELLIGENCE.

**LOCAL GOVERNMENT BOARD BUILDINGS DISPUTE—SPENCER, SANTO AND CO. V. THE COMMISSIONERS OF H.M. WORKS AND BUILDINGS.**—Several weeks may be occupied with this case, which opened before Mr. Pollock, one of the Official Referees of the High Court, last Monday, and which is being brought under an order of the Court on behalf of the debenture-holders of the plaintiff company against which a winding-up order was made in 1911. The claim is for £97,109, balance claimed as due on a contract for £473,000 for the erection of the new Local Government Board Offices at the corner of Charles Street and Parliament Street from the designs of the late Mr. J. M. Brydon. The Government Department allege that the contractors were only entitled to £406,000, instead of £473,000; but the plaintiffs claim that, owing to alterations in the plans and non-supply of stone stipulated for, they are entitled to a balance of £97,109.

**STOKE-ON-TRENT SEWAGE WORKS LITIGATION.**—In the Court of Appeal on Tuesday last week Lords Justices Swinfen Eady, Phillimore, and Bankes dismissed the appeal of the defendants in the action of the Corporation of Stoke-on-Trent against the Stafford Coal and Iron Co., Mr. Jenkins, for appellants, explained that the appeal was from the recent decision of Mr. Justice Neville. The question was whether in a taxation of costs plaintiffs should be allowed the costs of inquiries as far as they had proceeded, before a referee. That decision depended on the construction of an agreement of compromise made in April, 1914. The corporation were plaintiffs in two actions. The corporation in 1907, when the first of these actions was commenced, were the owners of an estate on which they had erected sewage works, machinery, and plant. The minerals had been reserved, and defendants had caused subsidence and damage to buildings, by working beneath and near to the estate, by subjacent and adjacent works. With regard to the subjacent works, defendants had the right to let down the surface, but only on the terms of paying compensation. The second action was begun on February 27, 1911. The first had been confined to the adjacent works. The second was in respect of compensation for the subjacent workings. An order was made by consent on May 26, 1911. The Court dismissed the appeal, holding that there was no reason to disturb Mr. Justice Neville's decision.

Mr. Thomas Gammage Gosford, of Hazlewood Road, Northampton, retired builder, died on December 20, leaving £48,166.

## Our Office Table.

The report has received wide currency that Count Plunkett, the accomplished Director of the National Museum of Science and Art in Dublin and Vice-President of the Royal Irish Academy in 1907-8 and 1911-14, had been sentenced to death as a rebel, but that his sentence had been commuted to ten years' penal servitude; but as a matter of fact Count Plunkett has not yet been brought to trial. Of his three sons, the eldest, Joseph, was executed in Dublin last week immediately after a romantic marriage in his prison cell, and the younger ones, George and John, were sentenced to death for complicity in the happily abortive rebellion, their sentences being in each case commuted to ten years' penal servitude.

Speaking at the annual meeting of the Land Union on Monday, Lord Desborough, chairman of the council, observed that in the Lumsden case enormous valuation duties had been exacted by the Inland Revenue Commissioners when it was admitted there had been no increase in the value of the site. He thought that either the one-clause Bill promised by the Prime Minister on July 23, 1914, should be introduced, or that all such cases should be allowed to stand over until Parliament had time to deal with the matter. Such cases of hardship and injustice had had, and would have, a disastrous effect on land where buildings were urgently required.

At the meeting on Wednesday last of the city council of Liverpool, Mr. Richardson moved to refer back a recommendation of the Finance Committee that Mr. Thomas Shelmerdine (for forty-two years city surveyor and land steward, a post from which he retired in March, 1914, having attained the age of sixty-five years) be continued as consulting land steward and surveyor for six months at a fee of £150. This was an opportunity, he remarked, of effecting a little economy. Mr. Lucas seconded. Alderman Cohen explained that Mr. Shelmerdine was engaged in the supervision of an unfinished building in Mount Pleasant, and that it was to the advantage of the corporation that he should complete the job. An outside architect would probably cost £1,000. Mr. Gates said that Mr. Shelmerdine had a pension of £900 a year, and for the past two years had been paid £300 a year as consultant. It was now proposed to pay him £150, and in all probability another £150 would follow, making a total of £900 for a building costing £1,900. His information was that this was the only job Mr. Shelmerdine had been engaged in as consultant. The amendment was lost by a large majority, and the committee's recommendation was approved.

In June, 1912, while business premises, known as Wakefield House, were being demolished in Friday Street, Cheapside, a workman found a bucket containing what he thought was a collection of beads, but what proved to be jewelry of the time of Elizabeth or James I. An official under the Trustees of the London Museum succeeded in obtaining the find from the workman, and the discovery found a place in the British and London Museums. It was not until 1914 that the existence of the find came to the knowledge of the City Coroner, Dr. Waldo, to whom such discoveries have to be reported on pain of fine or imprisonment. The City Corporation then put in a claim for the treasure trove, and at Thursday's meeting of the Court of Common Council it was reported that a satisfactory solution of the dispute has been reached. A case of the jewelry is to be placed in the Guildhall Museum and plates affixed to the remaining exhibits in the British and London Museums stating that they are joint gifts of the City Corporation and Mr. Throckmorton as First Commissioner of Works.

The recent conference of Federal and State representatives in Melbourne unanimously passed a resolution approving the establishment of a central school of forestry by the Commonwealth and the States, and also that a special training school of

tropical forestry should be instituted. The subject of forestry is one that is attracting increasing attention throughout Australia, and all the States are giving it serious attention, though so far small practical results have been achieved. The Minister for Lands of New South Wales has announced his intention of submitting to his Cabinet definite forestry proposals, and he states that shortly three million acres of State forests will be allocated. It will be the duty of the Forestry Department to conserve the timber interests of the States, upon approved lines, ensuring the cutting down of only matured timber and planting fresh forests.

Kidder's "Architects' and Builders' Pocket-book," by the late Frank E. Kidder, first issued in 1894, has now reached a sixteenth edition. It is published in this country by Messrs. Chapman and Hall, Ltd., at one guinea net, and it numbers 1,816 pages, and yet is scarcely more bulky than one of our own price-books. Printed in admirably clear type on special thin paper, and strongly and durably bound in flexible leather, it will stand rough wear well. Naturally, there is a good deal in the volume pertaining specially to American practice, but it is well worth its price here, for we have nothing this side like it, possibly because even in better times few would run to the price. American architects and builders must be better book-buyers, we suppose, for the cost of the book must depend solely on its sale, as there is not a single advertisement, direct or indirect.

#### PARLIAMENTARY NOTES.

**CANADIAN LUMBERMEN IN ENGLAND.** Replying in the House of Lords to Lord Boredford, Earl Curzon, chairman of the Tonnage Committee, stated that there have recently been brought into this country 1,500 Canadian lumbermen to cut down timber in this country for sleepers, pit props, and so on, and this will make us less dependent upon foreign supplies. He hoped in a few weeks we shall have encouraging results from this experiment.

The twenty-eighth list of members, licentiates, and students R.I.B.A., serving with the forces, shows a total to date of 59 fellows, 434 associates, 233 licentiates, and 275 students.

The church of St. Hilda, Ravenscarf, near Whitby, formerly a Congregational church, is about to be extended eastward so as to provide a chancel. The architect is Mr. F. Tugwell, of Scarborough.

In the common room at 9, Conduit Street, W., the council of the Royal Institute of British Architects have placed on view a collection of drawings of old work and sketches and designs by the late Charles Edward Mallows, F.R.I.B.A., of London and Bedford, kindly lent by his widow.

A fine bust in bronze of Cardinal Newman has been set up in the gardens of Trinity College, Oxford. It is placed under the room occupied by his tutor, "Tommy" Short, and looks towards Wadham College. The pedestal, which is of stone, bears the inscription, "John Henry, Cardinal Newman, 1801-1890." The Cardinal is represented bareheaded, and wearing the simple cope of his ecclesiastical habit. The sculptor was Mr. A. Broadbent.

Lieut. Col. J. Maurice Arthur, Royal Engineers, Lieut. R.I.B.A., has been awarded the D.S.O. for special work in the trenches before Richbourg. Lieut. Col. J. Maurice Arthur joined the British Expeditionary Force with the First Lowland Field Company, in 1914, his unit being the first Territorial R.F. Field Company to join the Expeditionary Force. He was with his unit from December, 1914, to November, 1915, when he was appointed Lieutenant Colonel.

Between twenty and thirty members of the Lancashire and Cheshire Antiquarian Society visited Rochdale on Saturday afternoon to inspect the Galley Museum, a group of local prehistoric and medieval remains. Mr. and Mrs. C. F. Tallent, Esq., of Manchester, the president, and Mr. F. L. Phelps, of Eades, the hon. secretary, acted as guides. The Rochdale Museum is a fine example of the work of the Antiquarian Society.

Mr. R. J. Gordon met the visitors and showed them through the Antiquary and the Sheldrake exhibition, and the collection of local history. The Dr. March was described by Mr. W. A. Parker.

## COMPETITIONS.

**CIVIC ARTS ASSOCIATION COMPETITION FOR MEMORIAL DESIGNS.**—The full particulars of this competition have now been issued. The competition is divided into eight classes, and competitors may enter for as many classes as they please. Each class will be judged by a jury of not less than three members chosen by the Executive Committee from thirty representative artists and architects. The awards of the juries will be given to the best designs. The awards will be final and binding, and will not be subject to any appeal. In the event of all the designs submitted in any class being regarded by the jury as unsatisfactory solutions of the artistic problem set, the right is reserved to withhold the awards. All drawings and models must be delivered, carriage paid, at 23a, Maddox Street on Monday, July 10, between 9 and 4. The prize designs and such others as may be chosen for the purpose will be exhibited by the Civic Arts Association at the Galleries of the Royal Institute of British Architects during July next. The Civic Arts Association reserves the right to exhibit selected designs in the provinces after the London exhibition. Detailed conditions.—(Class I.: Design for a monument suitable for erection in the centre of the members' courtyard at the new County Hall, London [this courtyard is approached from the entrance to the buildings in the Westminster Bridge Road] in commemoration of those of the London County Council staff who sacrifice their lives in the war. The donor of the prize desires that a cross shall form part of the design, and that the symbolism shall be religious. The general character of the monument should be sculptural rather than architectural, but with due regard to the nature of its setting. Competitors are permitted to visit the site in order to study the character of the surrounding buildings, and if further information is required as to the portions of the building not yet completed it may be obtained of the architect, Mr. Ralph Knott, Adelphi Terrace House, Adelphi, W.C. Sketch plan, showing the limit of the size for the base of the monument, viz., 20 ft. in diameter, is printed in the detailed particulars, which may be obtained from the Secretary, 28, Prince's Gardens, S.W. A P.O. for Is. and a stamped and addressed envelope must be sent with the application, but the P.O. will be returned on the receipt of a bona-fide design. The materials should be Portland or Purbeck stone, or stone and bronze, not marble. The drawings are to include plan and one or more elevations to a scale of half an inch to the foot, and such other details to a larger scale as the competitors may desire, but not more than two imperial (30 ins. by 22 ins.) sheets may be sent in. In addition to the scale drawings, competitors may submit a perspective on a sheet not exceeding 15 ins. by 22 ins., or a model to a scale not exceeding half an inch to a foot, or both perspective and model. The following prizes will be given to the best designs: 1st prize, £50; 2nd prize, £15. Class II.: Design for a wall tablet in cast bronze, the area not to exceed 4 super. feet. The inscription is not to exceed 40 words, and its composition is left to the discretion of competitors, subject to its being in memory of an individual soldier who has fallen in the war. The design may include figures, a coat of arms, or a regimental badge. It must be such that it could be executed for £50, and must be shown by a half-full-size plan and elevation, and such full-size details of moulding, lettering, etc., as may be thought necessary, all drawn on one imperial (30 ins. by 22 ins.) sheet, or a model may be submitted. The following prizes for the best two designs are offered by Messrs. J. W. Singer and Sons, Ltd., of Frome: 1st prize, £20; 2nd prize, £5. Messrs. Singer reserve the right to carry out any designs submitted in this class on payment to the designer of royalties of 10 per cent. on the value of all tablets executed from the designs. Class III.: Design for a wall tablet in carved wood (the nature of the wood is left to the competitor's discretion), the area not to exceed 5 super. feet. The inscription to be in raised lettering and not to exceed 60 words, and its composition is

left to the discretion of competitors, subject to its being in memory of an individual soldier who has fallen in the war. The design must be such that it could be executed for £50. It must be shown by a half-full-size plan and elevation, and such full-size details of mouldings, carving, lettering, etc., as may be thought necessary; all drawn on one imperial (30 ins. by 22 ins.) sheet. The following prizes for the best two designs are offered by Messrs. Martyn, of Cheltenham: 1st prize, £20; 2nd prize, £5. Messrs. Martyn reserve the right to carry out any design submitted in this class, on payment to the designer of royalties of 10 per cent. on the value of all tablets executed from the design. Class IV.: Design for a wall tablet in marble or stone, the area not to exceed 6 super. feet. The inscription is not to exceed forty words, and its composition is left to the discretion of competitors, subject to its being in memory of an individual soldier who has fallen in the war. The design should include a coat of arms or a regimental badge, or both, and colour or gilt may be used in the decoration of the tablet. The design must be such that it could be executed for £25. It must be shown by a half-full-size elevation, and such full-size details of mouldings, lettering, etc., as may be thought necessary, all drawn on one imperial (30 ins. by 22 ins.) sheet. The following prizes for the best two designs are offered by Mr. H. A. Bartlett, chairman of Messrs. Battiscombe and Harris: 1st prize, £20; 2nd prize, £5. Class V.: Design for a simple wall tablet in wood, the area not to exceed 4 super. feet. The inscription is not to exceed forty words, and its composition is left to the discretion of competitors, subject to its being in memory of an individual soldier who has fallen in the war. The design must be such that it could be executed for £10. It must be shown by a half-full-size plan and elevation, and full-size details of mouldings, lettering, etc., as may be thought necessary, all drawn on one imperial (30 ins. by 22 ins.) sheet. The following prizes for the best two designs are offered by Mr. H. A. Bartlett, chairman of Messrs. Battiscombe and Harris: 1st prize, £10; 2nd prize, £5. With regard to Classes IV. and V. Messrs. Battiscombe and Harris, who are providing the prizes, reserve the right to carry out any design submitted in these two classes on payment to the designer of royalties of 10 per cent. on the value of all tablets executed from the designs. Class VI.: Mural painting for a boys' club. Two prizes of £10 and £5 are offered for designs for a wall painting such as might be carried out in the hall of a boys' club or board school to commemorate those from the club or school who have died during the war. The subject of the painting may be either religious, allegorical, legendary, or an actual scene in modern warfare. Class VII.: A fountain, architectural or sculptural, or a combination, for an open site in a country town or village, in memory of the local soldiers who have given their lives for their country in this war. The character of the design is left to the competitor, but the space for the inscription, of about forty words, must be included; it is important that this should be very clear. Plans of two levels, a section, two elevations and such other details as suggest themselves to the designer, may be shown, drawn on an imperial sheet (30 ins. by 22 ins.) to a scale of half an inch to a foot. A perspective may also be submitted on a sheet not exceeding 15 ins. by 22 ins., or a model to a scale not exceeding half an inch to a foot. The estimated cost of execution not to exceed £200. The following prizes for the best designs are offered by the Right Hon. Charles Booth: 1st prize, £20; 2nd prize, £5. Class VIII.: Inexpensive memorials for the "home." There is a great need for a class of memorial which will be within reach of those whose incomes are very small; at this exhibition it is hoped to put before the public designs and suggestions of this kind, such as tablets, medallions, frames for rolls of honour and photographs, caskets for mementoes or stands for holding medals, etc. Competitors should submit finished works, models, or drawings as nearly like the proposed object as possible. The best submitted will be exhibited in the

hope that manufacturers will enter into negotiation with the authors with a view to reproduction. These inexpensive memorials should be capable of being made in quantities at prices varying from 5s. to £2 each.

## Building Intelligence.

**SELLY PARK.**—The new church attached to St. Paul's Convent, Selly Park, Birmingham, was blessed and opened by the Archbishop of Birmingham last week. The new church is a brick building with dressings of mottled Hollington stone and is in the Late Decorated style. It consists of a nave, transepts, and chancel, the last terminating in a semi-octagonal apse. There is a large tribune at the west end of the church, which is accessible from the infirmary of the convent, and the organ gallery is in the north transept. The high altar frontal is of polished Mexican onyx, and the reredos of this altar is of Derbyshire alabaster with a carved oak superstructure. The cost of the building, which is over 86 ft. long and 28 ft. wide, was more than £7,000. The architect was Mr. H. T. Sandy, of Birmingham and Stafford, and the builders were Messrs. Gough and Sons, of Wolverhampton.

## WATER SUPPLY AND SANITARY MATTERS.

**BOLTON.**—The corporation have under consideration alternative schemes for water supplies either from Roeburndale in North Lancashire, or from Hawes Water in Westmorland, and the question of promoting in the next session of Parliament a Bill to obtain powers to carry out such work in lieu of proposed waterworks in the district authorised by the local Act of 1905. The scheme recommended is that from the source at Roeburndale, which is estimated to cost £2,536,000.

## TRADE MOVEMENTS.

**SWANSEA.**—The building trades dispute has been amicably settled, all masons, carpenters, painters, etc., securing 1d. per hour increase. Their previous rates were 9d. per hour. Labourers also obtain 1d. per hour advance.

## TRADE NOTES.

Boyle's latest patent "Air-Pump" ventilators have been applied at the Gas Light and Coke Company's Works, Beckton, North Woolwich.

The General Hospital, Jersey, has recently been supplied with Shorland's warm-air ventilating patent Manchester grates by Messrs. E. H. Shorland and Brother Ltd., of Fails-worth, Manchester.

At Barnsley on Wednesday a Local Government Board inquiry was held into an application by the corporation for sanction to borrow the further sum of £1,977 in connection with the extensions to the public baths.

The death occurred on Thursday night at Rothwell, Kettering, of Mr. Frederick Barlow, aged 60, a well-known brick and tile manufacturer in Glendon Row, Rothwell. He unsuccessfully contested North Northamptonshire as a Liberal in 1900.

Warrant was granted to the corporation of Edinburgh at a sitting of the Dean of Guild Court on Thursday—Lord Dean of Guild Macintyre Henry presiding—for the erection of the first section of the new electric light station at Westbank, Portobello.

Mr. Thomas Davies, son of the late surveyor, has been appointed surveyor to the St. Asaph Rural District Council. The salary offered was only £60 per annum, but twelve candidates applied for the post, the amounts asked ranging from £52 to £150 a year.

A second main conference on arterial roads in Greater London is to be held in the Middlesex Guildhall on Wednesday in next week, the 19th inst., to consider the report summarising the conclusions of the six sectional conferences, and to consider a resolution to be moved by Sir Aston Webb to the effect that steps should be immediately taken through the Local Government Board or other authority to secure the routes of such new or improved thoroughfares as are set forth in the important traffic proposals contained in the report of the Con-



## TO ARMS!

1ST LONDON ENGINEER VOLUNTEERS, LATE 4TH BATTALION CENTRAL LONDON REGIMENT VOLUNTEERS.

ORDERS FOR THE WEEK BY COLONEL C. B. CLAY, V.D., COMMANDING.

OFFICER OF THE WEEK.—Platoon-Commander N. E. Brown.

NEXT FOR DUTY.—Platoon-Commander G. H. C. Bond.

The amalgamation of the 4th Batt. Central London Regiment Volunteers and the Engineering Institutions Volunteer Engineer Corps having been ordered by the County Commandant, the Corps will in future be known as the 1st London Engineer Volunteers.

APPOINTMENTS.—The provisional appointment of Sergeant H. A. N. Medd as Sergeant-Instructor of Musketry is cancelled. Mr. R. H. Bryans to be Sergeant-Instructor of Musketry.

LECTURES.—Thursday, May 11, Instructional Parade.

MUSKETRY.—See Notice and Time Tables A and B at Headquarters.

DRILLS AND PARADES.—For details of all drills and parades see notice board at Headquarters.

ENTRECHING PARADE.—Tuesday, May 14, at Victoria (S. E. and C. Railway Booking Office) at 9 a.m. for special train. Uniform, haversacks, and water bottles. Midday rations to be carried. Railway vouchers will be provided. As General Sir Francis Lloyd, K.C.B., will inspect the Battalion at work, every member should make a special effort to attend.

NOTICE.—The Parade for Richmond Park on Sunday, May 21, is cancelled.

SPECIAL ORDERS No. 3 COMPANY.—Drills, 6.25-7.25, 7.25-8.25. Monday, May 8, Sees. 1 and 2, Technical; 3 and 4, Squad and Platoon. Signalling Class and Recruits. Tuesday, May 9, Recruits Drill, 7.15-8.15. Thursday, May 11, Shooting for Sees. 3 and 4, Recruits, 5.45-7.45. Friday, May 12, Sees. 3 and 4, Technical, 1 and 2 Squad and Platoon. Signalling Class and Recruits. Saturday, May 13, Company Commander Fleming's Instruction Class, 2.30. Sections for Technical, Parade at Headquarters, London Electrical Engineers, 46, Regency Street, S.W. Sections for Shooting, Parade at Minia-ture Range. Unless otherwise stated, all Parades at Chester House.

By order,

MACLEOD YEARLEY,

May 8, 1916. Adjutant.

## MEETINGS FOR THE ENSUING WEEK.

THURSDAY (May 11).—The London Society. "Shakespeare's London," by T. Fairman Ordish, F.S.A. Royal Society of Arts' Hall, 1, St. John Street, Adelphi, 7.30 p.m.

Auctioneers' and Estate Agents Institute. Annual Meeting, 34, Russell Square, W.C.

SATURDAY (May 13).—Institution of Municipal and County Engineers. Meeting of the North-Eastern District at Hull. Paper by E. W. Bricknell, city engineer, "Recent Municipal Works and Practice in Hull," 10 a.m.

TUESDAY (May 16).—Builders' Clerks' Benevolent Institution. Annual Dinner. King's Hall, Holborn Restaurant, 6.30 p.m.

WEDNESDAY (May 17).—Royal Society of Arts. "Hindu Hand-painted Calicoes of the Seventeenth and Eighteenth Centuries, and their Influence on the Textile Arts of Europe," by George P. Baker, 4.30 p.m.

SATURDAY (May 19).—Edinburgh Architectural Association. Visit to the Royal (Dick) Veterinary College, Summerhall, 2.45 p.m.

MONDAY (May 15).—Royal Institute of British Architects. Ordinary Meeting, 4.15 p.m. L.C.C. School of Building, Fendale Road, Brixton. "Town Planning and Architecture," No. 11. By Professor Beresford Pite, F.R.I.B.A., 7 p.m.

The Post Office Buildings in George Square, Glasgow, which have been reconstructed at a cost of over £100,000, were informally opened last week.

A new Presbyterian Church is about to be built at Clontibret, County Monaghan, from plans by Messrs. Young and Mackenzie, Scottish Provident Buildings, Belfast.

Subject to the approval of the Local Government Board, the city council of Ripon have accepted tenders amounting to £9,242 for the proposed improvements of the corporation gas-works.

The city engineer of York, Mr. F. W. Spurr, in a report to the Employment and Expenditure Committee, states that the cost of maintaining the permanent way in connection with the York tramways has been: Actual cost per mile of single track in York, £50; average cost in seventy-one other towns, £163. Average cost per car mile in York, 12d.; average cost in seventy-one other towns, 52d. The low figure for York is, Mr. Spurr believes, to some extent accounted for by the greater age of the tramways in other towns, and figures for some towns might include costs of partial reconstruction.

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as fully as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations of literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Edlingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither then nor is much good to illustrate buildings which have been some time executed, except under special circumstances.

\*Drawings of selected competition designs, important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc., we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

Telephone: Gerrard 1291.

Telegrams: "Timeserver, Estrand, London."

## TERMS OF SUBSCRIPTION.

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Advertisements for the current week must reach the office not later than 5 p.m. on Tuesday. Front-page advertisements and alterations or stop orders for serial advertisements must reach the office by first post on Monday to secure attention.

RECEIVED. T. B. B. and Co., A. D. W. C. Co., Ltd., V. de T. Co., Ltd., C. C. D. and Co., G. A. B. O. Co., Ltd., R. I. Co., Ltd., W. O. and Son, H. R. Co., Ltd., K. C. I. Co., K. C. and Co., K. B. and Son, E. C. Co., F. and J. P. T. Co., Ltd.

VOX.—Yes.

L.R.I.B.A.—Please send.

E. P. S.—Thanks; not just at present.

ASSOCIATE.—Certainly. Details of good modern work are always welcome. 2. In line, please.

JOHN S. HOBSON (Beverly, U.S.A.).—Very many thanks. Have optimised the cutting sent. Always glad of help of that sort.

C. H. Denny, C. Pastorelli, A. Campbell, L. Harfield, R. A. Miles, H. P. Edwards, R. Shaw, F. Rowe, G. Kemp, and others are thanked for Masonic votes to hand.

URGENT.—PLEASE NOTE.—To prevent disappointment, owing to restricted and later postal deliveries, it is not safe to wait till Tuesday morning to send us advertisements for the current week's issue. Many reach us after 3 p.m., at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order THE BUILDING NEWS regularly of their newsagent or bookstall. With the present shortage of paper and probable still further rise in its price, it is futile to expect a newsagent to saddle himself or us with surplus unsold copies to oblige chance customers, on which, moreover, he or we have to pay heavy and increasing carriage charges.

The death is announced of Mr. James Schofield Scotland, Midgley, a well-known Calder Valley stone merchant and quarry owner. He was eighty years of age.

Mr. Trevor J. Blake, assistant surveyor to the Guildford Rural District Council, has been appointed to a similar position under the Newmarket Urban District Council.

The Durham County Council agreed, at their meeting on Wednesday, to raise the salary of the deputy surveyor to £260, rising to £300. The question of the wages of roadmen was referred to a sub-committee.

The new main road up the Penrhyn Hill, between Colwyn Bay and Llandudno, has been rolled and consolidated. Until the end of the war it is proposed to form a rough fence of stone at the side of it which overlooks the old road, but it will be soon opened for traffic. It is hoped that this will take place before Whitsuntide.

At the Vatican the paving with marble is about to be undertaken of the spacious passage that stretches from the Bronze Doors to the foot of the Scala Regia. The next work to be done in St. Peter's will be the construction of the tomb of Pius X., the funds for which have been subscribed by the Cardinals created by him. Over forty competitive models have been sent in by distinguished artists, but no selection has yet been made.

The Western District Committee of the Dumbarton County Council have received a report from a sub-committee on the housing question in the Vale of Leven. It has, however, been decided not to proceed with a scheme meantime, but to ask the sub-committee to obtain a report upon sites, plans of buildings, estimates, roads of access, water supply, drainage, lighting, and maximum loan obtainable, the rate of interest and period of repayment, together with the estimated rents likely to be obtained under normal circumstances.

The canal between Marseilles and the Rhône has now been completed, and was inaugurated on Sunday by M. Sembat, Minister of Public Works, and M. Clementel, Minister of Trade. The length of the canal is forty-eight miles. The canal is connected with Marseilles Port by a tunnel nearly 4½ miles long and 72 ft. broad. The depth of water will be about 10 ft. The tunnel, which is the largest of the kind in the world, has cost £2,120,000. It contains two waterways, for the ascent and the descent of boats. There is a revolving bridge at Caronte, 1,100 yards long, under which ships will pass, and a strategic railway will pass over the bridge.

## LATEST PRICES.

N.B.—All prices must be regarded as merely approximate for the present, as our usual sources of information are in many cases failing us.

## TIMBER.

Owing to stoppage of supplies all prices have advanced considerably.

IRON.	Per ton.	Per ton.
Rolled Steel Joists, English.	£20 0 0	to £21 0 0
Compound Girders, Ordinary	22 0 0	23 0 0
Compound Stanchions	23 0 0	21 10 0
Wrought-Iron Girder Plates	13 10 0	13 12 6
Steel Girder Plates	13 15 0	13 17 6
Steel Sheets (Single or Double)	11 10 0	—
Steel Strip	10 15 0	—
Basic Bars	11 15 0	—
Mild Steel Bars	18 0 0	18 10 0
Steel Bars, Ferro-Concrete	18 0 0	—
Quality (basis price)	15 10 0	15 15 0
Bar Iron, good Stuffs	24 0 0	—
Do., Lowmoor, Flat, Round, or Square	16 0 0	16 10 0
Do., Staffordshire Crown	8 0 0	8 15 0
Boiler Plates, Iron—	9 0 0	9 10 0
South Staffs	—	—
Best Suedhill	—	—
Angles, 10s., Tees 20s. per ton extra.	—	—
Builders' Hoop Iron, for bonding, £13 5s. to £13 15s.	—	—
Do., galvanised, £20 to £20 10s. per ton.	—	—
Galvanised Corrugated Sheet Iron—	—	—

Galvanised Corrugated Sheet		No. 18 to 20.	No. 22 to 24.
6ft. to 8ft. long, inclusive		Per ton.	Per ton.
gauge	£30 0 0	£30 0 0	
Best ditto	12 0 0	12 0 0	
	Per ton.	Per ton.	
Cast-Iron Columns	£13 10 0	to £14 0 0	
Cast-Iron Stanchions	13 10 0	" 14 0 0	
Rolled-Iron Fencing Wire	8 15 0	" 9 5 0	
Rolled-Steel Fencing Wire	7 15 0	" 8 0 0	
Galvanised	6 5 0	" 6 15 0	
Cast-Iron Sash Weights	7 0 0	" 7 10 0	
Cut Floor Brads	15 0 0	" 15 5 0	
Corrugated Iron, 24 gauge	16 0 0	" —	
Galvanised Wire Strand, 7 ply,			
14 B.W.G.	14 5 0	" —	
B.B. Drawn Telegraph Wire, Galvanised—			
0 to 8	9	10	12
10 to 10s.	10 15s.	11 0s.	11 5s.
11 15s.	per ton		

# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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A Street of Small Houses from the designs of Mr.  
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Chimney Piece, Front Drawing-room, 20, St. James's  
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versity: View from South Bridge Street and  
two views of the Old Quadrangle. From  
"Robert Adam and his brothers," by Mr. John  
Swarbrick, A.R.I.B.A.

## Currente Calamo.

The traditional technicalities of the Land Laws still hold their own—at all events, in the Court of Appeal. That is so, even though the judges below may try their best in the way of fair dealing as between lessor and lessee or landlord and tenant. A good illustration of this has been given by the recent case of "Malzy v. Eicholz and Castiglione." There the plaintiff sued the first defendant as his lessor, and the second as a tenant. Plaintiff had taken a lease of part of premises in the Strand for twenty-one years at a rent of £600. In this he covenanted to continue the place as a restaurant and keep up its licences. But the lessor afterwards let the other part of the building to the second defendant, who sublet to another, and he used the place to hold mock auctions. The resulting noise, crowding, and disturbance much damaged the plaintiff's restaurant business, and this was the ground of action. Mr. Justice Darling, who is a good lawyer, but not a conveyancer, and who tried the case with a jury, held that in law the plaintiff's covenant to continue the part of the place let him as a restaurant created an implied obligation on the part of the defendant landlord not to do anything which would injure his business, and the jury, on this, gave a verdict for £250 damages. But the Court of Appeal would have nothing to do with this reciprocal obligation, and soon got down to the one technical point of the lessor's covenant for quiet enjoyment as the only real thing. Then they held, on the authorities, that upon such a covenant the landlord was not liable, although he knew it was being broken by his own adjoining tenant and did nothing to stop it. So plaintiff lost the judgment against his lessor, and he has had a costly lesson in the good old law of real property and the strictly legal position of landlords.

We are glad to see that the Institute of Arbitrators, the formation of which in March last year we welcomed, is doing good work. As indicative of the wide interest which the various professional bodies have taken therein, it may be mentioned that its members include among them members of the following bodies:—The Institution of Civil Engineers, the

Institution of Mechanical Engineers, the Institution of Electrical Engineers, the Society of Engineers, the Royal Sanitary Institute, the Institute of Sanitary Engineers, the Concrete Institute, the Institution of Municipal and County Engineers, the Institution of Municipal Engineers, the Royal Institute of British Architects, the Society of Architects, the Surveyors' Institution, the Quantity Surveyors' Association, the Auctioneers' and Estate Agents' Institute, the Chartered Institute of Secretaries, and the London Association of Accountants. The May issue of the Institute's *Journal*, which is published quarterly at the offices, 32, Old Jewry, E.C., contains a short article on arbitration in building contracts which all our readers will do well to read. The writer calls attention to the unnecessary costs frequently occasioned by the unpreparedness of the parties to a submission with a clear statement of the matters in difference between them. His experience, like that of many others engaged in arbitration matters, especially in relation to building disputes, is that, with a clause in the contract referring all disputes to arbitration, immediately differences arise, the parties only too frequently appoint an arbitrator and proceed leisurely at sittings to develop their cases before the arbitrator instead of reducing to writing the issue between them, so that before he is called upon to hear evidence or to view, he may have a clear knowledge of the nature and scope of the dispute to be submitted to him.

A curious action for the return from an innocent purchaser of a rare volume stolen from a cathedral library came before Mr. Justice Ridley in the King's Bench Division on Wednesday. The Dean and Chapter of Lincoln, the plaintiffs, sued Mr. Wilfred M. Voynich, a dealer in ancient books, carrying on business in Shaftesbury Avenue, for the return of two books entitled "Expositio Sequentiarum secundum usum Sarum" and "Liber Hymnorum secundum usum Sarum," which concerned the ritual at Salisbury Cathedral in the fifteenth century. They were bound together in one volume. Various thefts of old books from the Lincoln and Peterborough Cathedral libraries had taken place in

recent years. The two books in dispute were first missed in 1912 or 1913. It was thought that they might have been stolen by a man, Tinkler, who was convicted of book thefts from cathedral libraries in 1912. In March last Mr. Voynich wrote to the Dean of Lincoln asking whether, among the books stolen from the library by Tinkler, was one called "The Exposition of Sequences," printed in the Diocese of Salisbury about 1495. Canon Johnston, Chancellor of the cathedral and custodian of the library, replied that the library did contain such a book, bound with other books, which had been missed during the two years he had been there. Mr. Voynich said he had bought the book for 300 dollars from a firm who had purchased it at an auction sale in Madison Avenue, New York. At the trial it was proved conclusively that such a volume, marked with the initials "M. H.," was catalogued as in the library in 1859, and a few years ago Canon Raine, of York, when examining the books in Lincoln library, marked this and one or two other books with an "R." to denote their rarity. When Dr. Buchanan checked the catalogue in 1913 this book was found to be missing. Mr. Justice Ridley found that the book produced by Mr. Voynich contained the initials "M. H." and the press mark and initial "R." Thereupon Mr. Voynich, without going into questions of legal title, handsomely presented the volume, for which he had paid £60, to the cathedral authorities, and it was agreed that both parties would pay their own costs. All will agree with Mr. Justice Ridley in commending the public spirit and generosity displayed by Mr. Voynich.

The Florida State Board of Architecture, of which Mr. Murray S. King, Orlando, is the president and Mr. E. H. Ehmann, of Jacksonville, is the treasurer and secretary, has just issued the following "declaration of principles":—"The Board holds that all plans and specifications prepared by an architect for use in the State shall be at a standard sufficient to guarantee the public against misinterpretation of the plans on account of plans and specifications not being clear or not showing essential parts of the construction of buildings. The Board holds that it is dishonest for an architect to prepare incomprehensible plans or plans

that are not substantially complete, or plans that are not accurate, or that do not show the construction of the structural parts or members of the building. The Act provides that all who desire to practise in this State shall pass an examination, and the Board has it in its power to insist that all who practise in this State shall prepare plans and specifications which plans and specifications shall meet a standard set by this Board. In other words, all plans and specifications furnished to the public by architects should meet a certain standard, not necessarily the standard set by the class examinations, but by the general practice of architects in the State; and the Board holds that this Board can revoke the architect's certificate if he or she makes a practice of selling plans to the public that are below the standard." There are now seventy-seven resident and two non-resident architects fully qualified under the laws of the State of Florida.

War has not checked the remarkable progress of the Public Trustee's Office. The report shows that, although values have depreciated, the volume of business (reckoned, of course, in market values) has greatly increased. The new estates and trusts accepted are worth 16½ million pounds, as compared with 11½ millions last year. The value of the new wills lodged in the year is 18 millions, as against 10 millions in the year before. The total value of the trusts actually being administered is now about 80 millions, and adding the 87 millions' worth of wills waiting for future administration in the strong-rooms of the office, the figure is about 168 millions. It is a curious fact that while the average will in this country is £4,000, the average value of the wills put into the hands of the Public Trustee is £12,000, from which the deduction may be drawn that well-to-do people are more willing to take advantage of a new public institution than are the poor. Some curious wills come in for administration. For instance, the office is now dealing with a testator who left £100 odd, a small debt, a donkey, and a bath chair. The biggest estate administered during the year was for over a million; the smallest about £30. The registration of enemy property in this country and of British property in enemy countries shows that the enemy property here is worth 134 millions, while the British property in enemy hands is worth only 90 millions. The latter figure may not be complete, as registration is voluntary.

An important decision respecting the Association of Architects of the Province of Quebec has just been handed down in the Court of Review, by Acting Chief Justice Archibald and Justices McDougall and Mercier. It appears that a Mr. Gariepy had transgressed the rules of the Association of Architects of the Province of Quebec by giving himself the title of architect without first becoming a member of the association. The association took the matter up and the Supreme Court some time ago confirmed a ruling of the

association which condemned Mr. Gariepy to pay a fine of \$100. The Court of Review now reverses the judgment of the Supreme Court and in so doing denies the Association of Architects of the Province of Quebec the right to exclude architects who are not members of the association from practising in Quebec.

The American Bureau of Standards is conducting an interesting experiment in order to ascertain the wearing properties of various mixtures of cement. For this purpose there has been erected a long building the sides of which are composed of forty-eight panels, each panel about 12 feet in height by 14 feet in length, while the ends have each four panels; thus the entire building represents a total of fifty-six panels made of as many different varieties of cement. In each instance the composition is plastered into place in the same manner as it would be in common practice, and the object of the test has been to determine what mixture "weathers" best; in other words, which panel will stand the sun, wind, rain and freezing temperatures of out-of-doors and remain in good condition.

We regret to learn that our contemporary, the *Irish Builder and Engineer*, suffered severely during the recent destruction in Dublin. For the first time during its existence of fifty-seven years it was forced to suspend the issue of a number. Its offices in Lower Abbey Street were totally destroyed by fire, but have been transferred temporarily to the printing works at Findlater Place, Upper Sackville Street, where all communications should be addressed until further notice. Our contemporary states that prior to the outbreak of the recent disturbances the dispute existing in the Dublin building trades was in a fair way of settlement. In view of the large amount of building work now in prospect in Dublin, we are glad to learn that the points in dispute have been referred to arbitration, which commenced last Friday, and meanwhile the men have returned to work.

Mr. Mowbray A. Green, F.R.I.B.A., of Prince's Buildings, Bath, has been called in to inspect the tower of Bath-easton Church and report as to needed repairs.

The Local Government Board have sanctioned the borrowing of £20,230 by the Hull Corporation to meet the expenses in respect of works and purchase of land in connection with the abolition of the Stoneferry Road level crossing.

Mr. Thomas de Courcy Meade, F.S.A., of Wastella, Robertson Road, Buxton, Derbyshire, city surveyor of Manchester, who died on February 11 last, aged fifty-seven years, left estate valued at £2,640 1s. 5d. gross, with net personality £2,437 13s. 2d.

The Corporation of Rochdale are applying to the Local Government Board for sanction to borrow about £60,000 for extensions to the electricity works and plant, in accordance with recommendations in the report of Mr. S. L. Pearce, the Manchester Corporation electrical engineer, who was called in to prepare an expert report.

The death has occurred, at Kempsey, of Mr. James Bromage, who was formerly a member of the Worcester City Council, and served the offices of Chamberlain and High Sheriff. He was head of the firm of Messrs. Bromage and Evans, builders and contractors, but had lived in retirement for several years.

## ROBERT ADAM AND HIS BROTHERS.\*

[WITH ILLUSTRATIONS.]

Recent authorities on the history of architecture acquiesce as to the far-reaching character and salutary influence of the graceful buildings, elegant decorations and well-made furniture of the famous Scotch family of architects, the Brothers Adam, whose eighteenth century mode just now shows a growing tendency towards a revival amidst our other eclectic endeavours. This possibly is due to a reaction against columnar redundancy, though fashion may be one cause. Anyhow, some leaders in building design have of late years been busy erecting expensive country residences with box-like sky lines set out with promiscuous swags and meaningless vases, or crowned by balustrades which serve no useful purpose. On the other hand, we are witnessing the gradual demolition of Nash's modest façades in Regent Street with no small regret, in face of the inordinate pretentiousness of differing heights now disfiguring that once not unpleasing thoroughfare, laid out as it was on uniform lines. Not long ago, when writing about the buildings of Robert Adam, Mr. Reginald Blomfield described his designs as being "as remote from the manner of Inigo Jones or Christopher Wren as the work of the eminent Nash himself." The ubiquitous extravagance now being displayed not only in the rebuilding of Regent Street but throughout the West End suggests the unappropriateness of such a disparagement of "the eminent Nash." Some of the work now in vogue provokes a desire to see a return, if not to the neat shapeliness of Nash, at least to something on the lines peculiar to the genuine architecture of the Adams, with its satisfactory proportions, refinement of detail and freedom from vulgarity—a type of work which almost became traditional. "The Adam style" is still a term familiarly employed to describe much of a second-rate order produced probably by mere imitators or mediocre contemporaries. Consequently, it is of much importance that no effort should be spared to secure an accurate choice of authentic examples properly described and reliably illustrated in collating a classical text-book of their manifold productions. The Gothic Revivalists had nothing in common with Inigo Jones, Christopher Wren, and their school. Burges said St. Paul's was a sham, and Britton and Pugin alluded to "the Scotch Quartette" as "four enterprising brothers named Adam"; but these neo-Medievalists failed to realise that one of the chief merits of special significance in Adam's designs is due to a recognition of the scope, texture and quality of the particular material intended to be used in each case. Other critics overlook this particular point and dismiss the style off-hand, whereas the variety of Adam work is far more comprehensive than has been generally supposed.

Their plans exhibit a keen regard for effective sequences and good contrasts, insuring also fine vistas, much reliance being placed on a symmetric layout of scheme with strict attention to axial lines relieved by the use of circular forms and segmental bays. All this contrivance displays no apparent effort, the parts coming so naturally together. The academical writer already quoted mentions that "Robert Adam regarded him-

\* "Robert Adam and His Brothers, their Life, Work, and Influence on Architecture, Decoration, and Furniture." By John Swarbrick, A.R.I.B.A. Quarto, art linen, gilt top, 300pp. £2 2s. 6d. (London: B. T. Batsford, Ltd., High Holborn, 1916.)

self as having introduced a fresh method of house planning," but "had he turned over the pages of *Vitruvius Britannicus*," he would have found all his inventions anticipated." The Admiralty screen is described as "a flimsy petty example of taste, being ridiculous in its scale by not exceeding in height that of a respectable shopfront." We doubt if that opinion, unearthed with gusto from Pugin's virile pen, will now be generally endorsed. It is to be observed, however, that in Adam's own book the proportions of this screen are shown considerably elongated.

The story of the Brothers Adam's career and its environment is most interesting, and their work forms a significant episode of the period which enriched the declining phase of what is now commonly termed the "Late English Renaissance," including, however, much capable work carried out about this period in Ireland, especially in Dublin. The widely prevailing appreciation by the educated public of the fine productions of the Brothers Adam is evinced by the large number of representative names in the copious list of subscribers prefacing Mr. John Swarbrick's book, just published by B. T. Batsford, Limited, under the above title. It is replete with information about the lives and personality of these architects, whose portraits are given, together with about two hundred and twenty illustrations, all of which are well chosen. For the greater part they are reproduced from specially taken photographs. The work will find favour on account of its series of smaller pictures of furniture and details of suggestive items in design. The principal plates are inset collotypes on stout paper, leaving nothing to be desired. Such a treatise, as a studio book, includes these minor accessories which play so obvious a part in all the buildings by Robert Adam and his brothers. In working out their designs they considered nothing too insignificant as part of a coherent architectonic manner and application of ornament.

Realising this, Mr. Swarbrick has done well to avoid making his volume too pictorial, and, in a scholarly way, he has endeavoured to trace the evolutions of the style as the outcome of much that went before. Representative plans interspersed through the book show how well they were schemed to ensure stately and commodious apartments set off by magnificent plaster ceilings, handsome mural treatments with colonnaded alcoves and approaches having admirable doorways kept in scale with the human figure, very different to the vast openings favoured by Sir John Vanbrugh. Most of their apartments were enriched by ornate chimney pieces and set off by fittings and suitable equipments. Their minor rooms possess unassuming fireplaces. Several representations are given in this quarto of such accessories as grates and metal furniture, iron grilles, lunettes and railings, hardwood joinery and cabinet work. In all this multifarious output the same spirit of individuality prevails.

The earlier portion of the book is occupied by an attempt to cover the ground anterior to the time when Adams' work came to the front, and in this way the precedents by which they were guided are better understood. Some chapters record the extent of both Robert and James's Continental tours, where they went and what they saw. A few examples are included of the Renaissance work of their predecessors—Inigo Jones, Christopher Wren, Andrea Palladio, James Gibbs, and Sir John Vanbrugh. Some account follows of the architectural folios and other works subsequently published under

distinguished patronage, as when Lord Burlington provided the funds for Kent's publication of Inigo Jones's designs of "Villas of the Ancients" and an edition of Palladio's "Restoration of the Roman Thermae." The Society of Dilettante helped to encourage such, and so did James Stuart and Nicholas Revett's "Antiquities of Athens." Wood and Dawkins' "Palmyra and Baalbec," also Robert Adam's "Spalatro," Le Roy's treatise on Greece, and other books by Honel and D'Orville on the temples of Sicily, are also to be mentioned, likewise Piranesi's etchings and romantic conceptions in the "Circere d'Invenzione." These works are among the influences traceable to some degree in their work, based, as much of it was, on Roman lines and decorative designs of the Cinquecento period. The brothers readily acknowledged their debt to the French buildings of the busy period of Louis XVI, synchronising with the time when they practised in a more severe style.

Robert was joined by James and William Adam, but their eldest surviving brother named John remained in Scotland. The political conditions then prevailing corresponded with professional prosperity, but, after a while, things grew unsettled, and many a Scotchman crossed the border in quest of greater opportunities in the south, and among them the Brothers Adam sought the success they subsequently achieved after setting up in the metropolis. Their father, William Adam, was in affluent circumstances, prospering as the best known architect of his day in Scotland; he also was Master Mason in North Britain. A bust of him is to be seen in Greyfriars' Church, Edinburgh. His position enabled him to further his sons' education, both by his example and estate. Robert Adam went abroad when he was twenty-six years of age, visiting Nismes, Rome, and Venice. Upon his return in 1757 the Earl of Bute afforded him no small assistance, though it is evident that Robert was at once recognised as a scholarly architect, and commissions from people of consequence speedily came into his office. These included Sharncliffe, in Bucks, 1759-61; Kedleston, Derbyshire; Harewood House, Yorkshire; Syon House—one of his best works—at Isleworth; Osterley Park House, Hounslow; and Nostell Priory, William Chambers and Robert Adam were appointed in 1761 as joint architects of His Majesty's Works. Notwithstanding the current prejudice against all Scots, the favoured brothers soon became the fashionable architects in London. The disposition to remain at peace prevailed and their success prospered. Many of their hopes, nevertheless, were destined to be frustrated, as a period of unrest was soon brought about, and eventually protracted hostilities upset not a few of their projects. In the meantime they were busily engaged upon minor matters between whiles, and in this way designs for cabinets, carpets, tapestry, embroidery, mirrors, lead lights and lunettes, fire-grates, door furniture, girandoles, epergnes, torcheries, and many other things displayed their manifold enterprise. The book includes some excellent specimens of this sort, besides an example or so from the illustrations of Robert Adam's "Spalatro," such as his drawing of the Temple of Jupiter. His earlier designs are too numerous to particularise. James Adam commenced his tour about 1760, and more detailed information of his travels is available, because he compiled a journal; but Robert made no diary of his doings. Mr. Swarbrick has taken many interesting particulars,

opinions, and impressions from the records left by James Adam.

In the limited space at our disposal it is impossible to follow the developments of the Adam style or even to recount an abridged selection of the types of work illustrated in this volume, which is no mere rechauffe of engravings from old books. All transcripts of that kind are of very limited value to the architectural student. The best idea of Mr. Swarbrick's collection will be gathered from the selection we give from his photographic illustrations. The larger collotype plates in the book are devoted to the most important subjects, such as a fine ceiling at 20, Portman Square; the sculptured chimney-piece in the banquetting room, Groome Court; the library, Kenwood, Hampstead; the back drawing room of Shelburn, now Lansdown House (1765), and some excellent furniture, like that in the dining-room at 20, St. James's Square, from which house we are enabled to give a chimney-piece in the front drawing-room. A general view of this apartment is the subject of another plate in the volume. This residence was erected for Sir Watkin Williams-Wynn, and is now the town house of the Earl of Strathmore and Kinghorne. A plan on page 271 shows how spacious and satisfactory a home can be built on a narrow site only 45 ft. wide. The morning room of Chandos House, Queen Anne Street, is given among our illustrations. The house was designed about 1771 for Cora Countess of Stafford, and contains paintings believed to be the work of Angelica Kaufmann. Over the staircase is a domical light which, though characteristic of the style, differs in many respects from the majority of Adam's similar treatments elsewhere.

Edinburgh University is illustrated here by three views on our second single sheet. It was one of the last undertakings entrusted to Robert Adam. The foundation-stone was laid in 1789 by Francis Lord Napier, in the presence of 30,000 spectators. The site measures 356 ft. by 235 ft. The principal entrance is in the middle of the South Bridge Street façade, as here shown, and those who wish to consult the plan as originally designed will find it in the book showing the intended pair of fine courtyards. After the death of the designer of this splendid scheme his brothers James and William continued the building's erection for some years, but the latter died in the meantime, and want of funds caused little progress to be made, so that in 1811 it was recorded that the University was only half finished. Early in the nineteenth century William retired from practice, so that when the buildings were resumed in 1815 William Henry Playfair, an Edinburgh architect, 1789-1857, was selected from nine competitors to complete the work subject to modifications of the original scheme, but with due regard to the part already executed, and to the preservation of the architecture of Robert Adam. With the assistance of a Government grant of £10,000 per annum for ten years the work was eventually completed in 1828. Among the omissions was the lofty dome designed by the brothers Adam, and one quadrangle was substituted in place of the inner courts so as to save expense. Playfair retained the treatment intended by Robert Adam for the ends of the two courts, and only prepared a new design for the two sides as seen by our pair of smaller illustrations, here-with. The present dome on the old building was erected in the year 1883 from the designs of Sir



Robert Rowand Anderson, LL.D. The material mainly used in the erection of the building was the excellent Craigleith stone, which has been so extensively employed throughout both old and new Edinburgh. The cost of the University Buildings, as reduced by Playfair, amounted by the year 1828 to the sum of £161,000. After the commencement of the American War the remaining buildings illustrated in the book by the Brothers Adam are Charlotte Square, Edinburgh, the "old" demolished Infirmary, Glasgow, and Gosford House, Haddingtonshire, the home of Earl Wemyss and March. The Library at Syon House, Isleworth, furnishes the frontispiece, and Kedleston, Derbyshire, the seat of Earl Curzon, is grandly in evidence by the stately entrance hall, which makes one of the most effective plates in the book.

#### INSTALLATION OF MR. F. W. F. CLARK AS PROVINCIAL GRAND MASTER OF ARGYLL AND THE ISLES.

An interesting ceremony took place on the 8th inst. at the Masonic Temple, Rothesay, when Mr. F. W. F. Clark, of Glen Caladh, Kyles of Bute, the chairman of Messrs. Robt. Ingham Clark and Co., Ltd., was installed as Provincial Grand Master of Argyll and the Isles, in succession to the late Major Fenton Newall. The ceremony was conducted by Colonel Robert King Stewart, of Mardoustoun, Grand Master Mason of Scotland, accompanied by a deputation of twenty-five office-bearers of Grand Lodge. The deputation included Messrs. J. Inglis, Grand Senior Warden; Geo. Glen, acting Grand Junior Warden; David Reid, Grand Secretary; the Rev. Hugh Reid, Senior Grand Chaplain; and J. Tennant Gordon, Grand Director of Ceremonies. There was a large representation of various lodges in the province, and the Grand Lodge of England was represented by Mr. G. W. Jones and Major H. Passmore Edwards, Past Grand Deacons.

The newly appointed office-bearers of the Provincial Lodge were also installed by the Grand Master. Prior to the ceremony the new Provincial Grand Master entertained the new office-bearers and the visiting deputation at luncheon in the Bute Arms Hotel.

The toast of "The Grand Lodge of Scotland" was proposed from the chair, and was replied to by the Grand Master Mason of Scotland, who, after giving some statistics, said Scottish Masonry was in a very flourishing condition. A great number of their brethren were at the front at the present time, and Grand Lodge had been able to assist them financially and otherwise, a sum of £2,200 being spent in that way.

Mr. J. Inglis, in proposing "The Provincial Grand Lodge of Argyll and the Isles," congratulated the new Provincial Grand Master on his appointment, and said we could not forget that for thirty-six years Sir Chas. Dalrymple, Provincial Grand Master, had set an example to the lodges in the provinces which they would do well to follow.

The new Provincial Grand Master, in replying, said he had already made some visitations of the lodges in the province, and found that, notwithstanding the present circumstances, the lodges seemed to be carried on with increased prosperity. He hoped before long to visit the north section of the province. He concluded by cordially thanking the company for the way in which they had accepted the toast.

The Rev. Pressley Smith, Oban, proposed "The Daughter Lodges in the Province," the toast being acknowledged by Mr. J. A. Sinclair, R.W.M. of Inverary Lodge.

The Mississippi State Legislature, who are keenly alive to the artistic value of the old State Capitol building, have commissioned Mr. T. C. Link, F.A.I.A., to report as to the feasibility of restoring this old building.

Messrs. Day and Klauder, architects, 925, Chestnut Street, Philadelphia, have completed plans for a science building, to be known as Wolf Hall, for Delaware College, at Newark, Delaware. The estimated outlay is \$225,000.

#### THE LONDON COUNTY COUNCIL.

At the meeting of the London County Council held yesterday (Tuesday) afternoon the Finance Committee recommended that sanction be given to the borrowing by the Hammersmith Borough Council of £3,000 for electricity purposes, including mains, transformers, switchgear, and house services, and to the borrowing by the Hampstead Borough Council of £3,000, three-fourths of the cost of a new switchboard at the electrical generating station; both proposals have been approved by the Treasury. The same committee reported that the capital estimate of the Establishment Committee (No. 6—New County Hall, £56,180) includes £50,000 in respect of building. H.M. Treasury have now agreed to expenditure of £75,000 in respect of payments to contractors in connection with the restriction of work at the new County Hall, and have been informed that this amount does not include any sum for architects' fees or payment to clerks of works, etc. The Finance Committee were advised that £4,000 should be added for these purposes, making a total of £79,000 for building, and increasing the total of the vote to £85,180, and accordingly now submitted a revised estimate of that amount.

The Establishment Committee stated that they reported on February 22 last the receipt of a letter stating that the Minister of Munitions had found it necessary, in view of the great shortage of labour for the construction of munition factories, to give directions under the Defence of the Realm Acts for the immediate discontinuance of the work now in progress at the new County Hall, and that he had notified the contractors, Holland and Hannen and Cubitts, Limited, accordingly. The committee have since been in communication with the Ministry of Munitions and the contractors on the matter, and had now considered certain proposals submitted by the contractors in connection with the closing down of the works. These proposals are as follows:—(1) That the Council permit the architects to meet the contractors and advise upon the covering up and protection of the works during the suspension of operations, and to point out any further work which they consider should be undertaken in order to leave the buildings in a safe and proper condition. A separate account will be kept of the cost of this item, which can be dealt with either through the Council or direct with the Ministry of Munitions, as may be decided. (2) That the Council agree to pay the contractors and sub-contractors for all work executed to the date of suspension, at contract rates. (3) That the Council agree to pay the contractors and sub-contractors for all material specially purchased or worked for the new County Hall buildings and delivered to the site, or such other place as may be selected, and in the event of the latter, any double handling to be taken into consideration either by the Ministry of Munitions or the Council. (4) That the Council agree to the continuance of the preparation of the stone work so as to provide employment for the masons and expedite the building on the resumption of work, and provide a suitable site for the storage of the stone until required. [If this clause is agreed to, it is suggested that the worked stone be inspected by architects, and that which is passed be paid for at the rate of worked stone only, leaving fixing and cleaning down to be dealt with subsequently, together with any double handling involved.] (5) That the Council agree to the continuance of the preparation of steel construction so far as may be found possible in high tensile steel, similar to that now being rolled for Government purposes. This is to apply to straight bars only, up to but not including the roof. [If this clause is agreed to, it is suggested that payment be made for material delivered only, and that fixing be dealt with when executed.] As regards (1), the committee have informed the contractors that they are prepared to authorise the architects to advise them in connection with the covering up and protective works, but that any advice which may be given by the architects will be without any responsibility on their part or on the part of the Council, and that as regards the cost of the works the contractors should

deal direct with the Ministry of Munitions. As regards (2), the contract with the company provides that no certificate for payments on account shall be issued for amounts of less than £6,000, £4,000, and £2,000 in respect of permanent work executed and fixed in sections A, B, and C respectively of the new building. In view, however, of the special circumstances arising from the closing down of the works, the committee think that the Council may well agree to suspend the operation of this provision so that payment may be made for permanent work executed and fixed in the building up to the date of the stoppage of the work, although the actual value of such work is less than the foregoing minima amounts provided for in the contract. Such payments will not affect retention money and periods of maintenance, and no payments will be made direct to sub-contractors. As regards (3), (4), and (5), Clause XXV. of the contract provides that, subject to certain conditions, payment on account "shall be made to the contractors by the Council at the rate of 90 per cent. upon the value of permanent work from time to time executed and fixed on the site," but there is no provision in the contract for payment in respect of materials specially worked and delivered on the site, but not fixed. We think that, subject to proper safeguards, the Council may be disposed to authorise the architects to issue certificates for further payments to the contractors generally on account of the contract in order that payments on account may be made at the rate of 80 per cent. of the value of materials, stonework, and steelwork delivered on the site, provided (i) that the architects are satisfied that the materials and stonework have been specially prepared for the new County Hall, and are ready for fixing when delivered; (ii) that payments for raw or unconverted materials shall be made only at the sole discretion of the architects, whose decision shall be final; (iii) that high tensile steel shall be used only at the sole discretion of the architects; (iv) that the amount of such advances shall be redeemed by deductions from advances subsequently made on account of permanent work, as and when the materials become absorbed in the permanent; and (v) that payment shall in no case be made for double handling. This concession could, of course, only be made on condition that it shall not in any way prejudice or affect the right of the architects under the contracts to reject such materials, or any of them, at any time during the continuance of the contracts. Payments under (2), (3), (4), and (5) will be made to the contractors generally under the contracts without prejudice to any of their liabilities and obligations under the contracts and to the rights and powers of the Council thereunder, and subject to the accounts being adjusted from time to time after the work is recommenced on the site. The delivery of materials, stonework, and steelwork, as suggested, should enable the building works to be expedited when resumed, but, on the other hand, it may involve the Council in additional expense by way of interest charges or in other directions. It is estimated that, assuming that the Council agrees to these proposals, the expenditure during the year 1916-17 in respect of the new building, excluding the river wall extension works, will not exceed £79,000, and they have made it a condition of the Council's consent to grant to the contractors the concessions which we now recommend that the amount to be paid to them during the year 1916-17 shall not exceed £75,000. In order to provide for the expenditure in question in the capital estimates for 1916-17, the chairman asked leave yesterday to move the approval of a revised estimate of £85,180 in respect of the new County Hall, including the river wall extension works. The contractors have also raised the question of the general maintenance of the building, watching, lighting, etc., during the period of the stoppage of the works, and these appear to be questions which should be dealt with by them and the Ministry of Munitions, and not by the Council. The committee recommended:— "That, notwithstanding the terms of Clause XXV., relating to payments on account, of



the contract with Holland and Hannen and Cubitts, Limited, the contractors for the construction of the superstructure of the new County Council, the architects be authorised to issue certificates for further payments to the contractors generally on account of the contract, subject to the accounts being adjusted from time to time after the work is recommenced on the site."

The Asylums Committee reported that the services of Mr. J. N. Anderson, the clerk of the works for the erection of the eleventh asylum, will be retained to supervise the buildings for such time as the erection of the asylum is suspended at a remuneration of 2½ guineas a week with permission to continue to occupy, rent free, the residence on the estate in which he is now living. If it is necessary he may be employed as relief builder's foreman at any other of the institutions at Epsom.

The Establishment Committee reported that the Ministry of Munitions had asked that the services of Mr. R. Robertson, divisional architect for schools, may be placed temporarily at its disposal, and as a matter of urgency, leave of absence without pay had been granted to Mr. Robertson on the usual conditions in such cases. The services of Mr. C. W. Beaumont, an assistant in the second class in the architect's department, had also been lent to the Ministry of Munitions on similar conditions. The committee's action was formally approved.

In connection with the Tabard Street, Southwark, scheme the Housing Committee reported that in response to their representations the Local Government Board had issued an order permitting a modification of the confirmed scheme as to enable the Council to demolish another 268 buildings, in addition to those already razed.

The quarterly report of the Building Acts Committee stated that 1,167 notifications had been received with regard to structures alleged to be in a dangerous state. Under Part IX. of the London Building Act, 1894, a survey was made in each case. In 197 cases it was found that the structures were not in a dangerous condition, and consequently no further action was necessary; in 970 cases notices were served upon the owners requiring the removal of the danger. It was necessary in some cases to obtain orders from the magistrates, and in nineteen cases in which such orders were not complied with the Council's contractors were instructed to take down the dangerous portions of the structures, and as a temporary expedient forty-seven structures were shored up or hoarded-in by the Council's contractors.

The General Purposes Committee reported that they had arranged for the extension for a period of one year from March 31, 1916, of the contract with John Mowlem and Co., Limited, for the execution of engineering jobbing work, and of the contracts with Higgs and Hill, Limited, for (a) the pulling down, repairing, and securing of dangerous and neglected structures, and (b) hoarding and shoring works under the supervision of the valuer. In each case the extension is subject to certain adjustments of prices, consequent on the conditions obtaining by reason of the war, and the contract relating to dangerous and neglected structures is terminable on one month's notice being given by either party. Mr. A. R. Dyer, divisional officer of the Fire Brigade, has been permitted by the same committee to take out a patent for a nozzle for adapting an ordinary soda water syphon for use as a liquid fire-extinguisher.

The Council is saving near £50,000 this year on parks and open spaces as compared with 1914. The Council's own band of three sections has been dispersed, but arrangements for music have been made with local bands. No bulbs have been planted, and the flower-beds are to be reduced in number by about one-fourth. This change, however, will not affect the gardens, squares, and churchyards of the East End.

Mr. Stanley Broadbent, of Cranford, Elms Road, Leicester, builders' merchant, whose death took place on June 27, aged fifty, has left £77,196 unsettled estate. He gave £500 for charitable purposes in Leicester, and £100 to his clerks and travellers.

## "PRACTICAL DRAWING"

Mr. E. G. Lutz has produced a handy and informative guide for the use of draughtsmen, with hints as well on the making of pictures. In the opening chapter the author says some sensible things about "beginning to draw" and commencing to copy subjects from the flat, but we find him rapidly passing on to model drawing and almost simultaneously developing into figure drawing from the cast, with hints, too, on the methods of shading. Drawing from the life, the most difficult branch of all, is speedily taken in hand by forthwith considering questions of pose, the getting of proportions, and making measurements. Hurrying on without delay, we arrive at "fundamental lines for constructing a life class drawing," but we halt to note that the beginner is told he must draw as he feels it to be, as in thinking out matters such as equilibrium and poise of the figure with regard to its swing, movement, or action. "It is a question too enigmatical, too argumentative, for any one person to insist on your seeing in his way; you must see, understand, and grasp the idea for yourself." No doubt "self help is the best of all," but the author is not, we suppose, insisting so much on that truism, perhaps, as trying to make the pupil realise that if he has no intuitive sense of drawing, all the rules about box-like forms discoverable in setting out the chest and pelvic regions of the human figure are of no avail.

The suggestions which follow are relatively suitable for rapidly making or recording a mentally ascertained geometric outline without attempting for the moment any regard for minute curves; but, instead, the pupil, without delay, is to put in the mass of the shadow-plane and follow the pattern of the shadow areas as exactly as possible in the time allowed when working quickly, but primarily considering all the while the chief importance of the pose, action, and direction of the limbs, specially that of the supporting leg, keeping in mind, too, that it is "life" that is being drawn, not the pattern of a rug or a framework of some inanimate ornament. Life work is above all that; but, coming down to a lower ideal, we read of drawing the human figure without models by the aid of proportional quantities of artistic scale as given in the multiple of "heads," about which rule authorities differ. Vitruvius gave the classical scale of eight heads, while Vasari and Filarete reckoned nine as more harmonious, and this is the fashion plate scale. Diagrams are drawn out to make these variations adaptable, together with the relative measurements, approximate, and also as carefully defined for the calf, knee, thigh, neck, and so on. If architects would only take some of the "frame-work lines" given by Mr. Lutz for their perspective figures, the results might be made less unsatisfactory than they generally are. However, we do not imagine any odd draughtsman is likely to construct a human head very successfully out of an egg outline with any lifelike expression, even should a "hard-boiled egg" be used for the experiment, as Rembrandt Peale, an American artist, proposed.

The real merit of this treatise seems to be the amount of information set out for the use of people who can already draw, and generally we find they need to learn many elementary things, especially rules of composition and relative values, not forgetting simple truths concerning perspective. Process drawing and materials, "splatter work," crayon work on "lined scraper" board, drawing papers and instruments are a few of the many subjects mentioned, with hints on stretching and mounting sheets of paper, also lettering with alphabets and types suitable for artistic characters. The book, which seems of American origin, is published here at six shillings by B. T. Batsford, Ltd., 94, High Holborn, W.C.

Tilbury Urban District Council have appointed Messrs. Allen and Thompson, of Howard House, Arundel Street, Strand, London, as advisory architects in connection with the council's proposed town-planning scheme.

## Our Illustrations.

### THE MUNICIPAL TECHNICAL SCHOOL, NEW EXTENSIONS, NAVIGATION STREET, BIRMINGHAM.

In the *Building News* for April 26 we gave a bird's-eye view and side elevation of this extensive and admirably planned educational project. Last week the main section and two typical plans of the building were illustrated. To-day we give the front elevation in Navigation Street and the facade on Suffolk Street. Thus we complete our series of plates reproduced from the working drawings, kindly lent, in compliance with our request, by the architects, Messrs. Nicol and Nicol, A.R.I.B.A., of Birmingham, who carried out the existing part of these premises some few years ago. When finished it will be one of the best-equipped institutions of the kind in the Midlands, and the need of such technical schools is beyond all question, if the trade conditions of this country are to prove equal to the nation's needs when peace does come. A description of the building will be found in our issue for April 26 last.

### CLAPHAM MATERNITY HOSPITAL.

Our illustration shows the main entrance to the new extension of this hospital, which was formally opened last year by H.R.H. Princess Henriette, Duchess of Vendôme. In the plan of the new buildings the wards are subdivided, so that no ward takes more than four or five beds. Jarrah wood block has been used successfully for the floors of most of the wards, and austral windows are in use throughout the new building. The front is of Doubling stone and Laurence's facing bricks, in well-mixed shades of colour. Messrs. J. Chessum and Sons, Ltd., carried out the contract under specially difficult conditions. The architects were Messrs. Hart and Waterhouse, F.R.I.B.A., of 1, Verulam Buildings, W.C., and the illustration is reproduced from their drawing now being exhibited at the Royal Academy.

### A SHEET OF SMALL COUNTRY HOUSES BY MR. ARNOLD MITCHELL, F.R.I.B.A.

These seven houses and small middle-class residences have been carried out at various times of late years by their architect, Mr. Arnold Mitchell, and on the same sheet of illustrations will be found a corresponding series of plans which make the subjects self-explanatory, the titles in all cases being attached to the views.

### ROBERT ADAM AND HIS BROTHERS

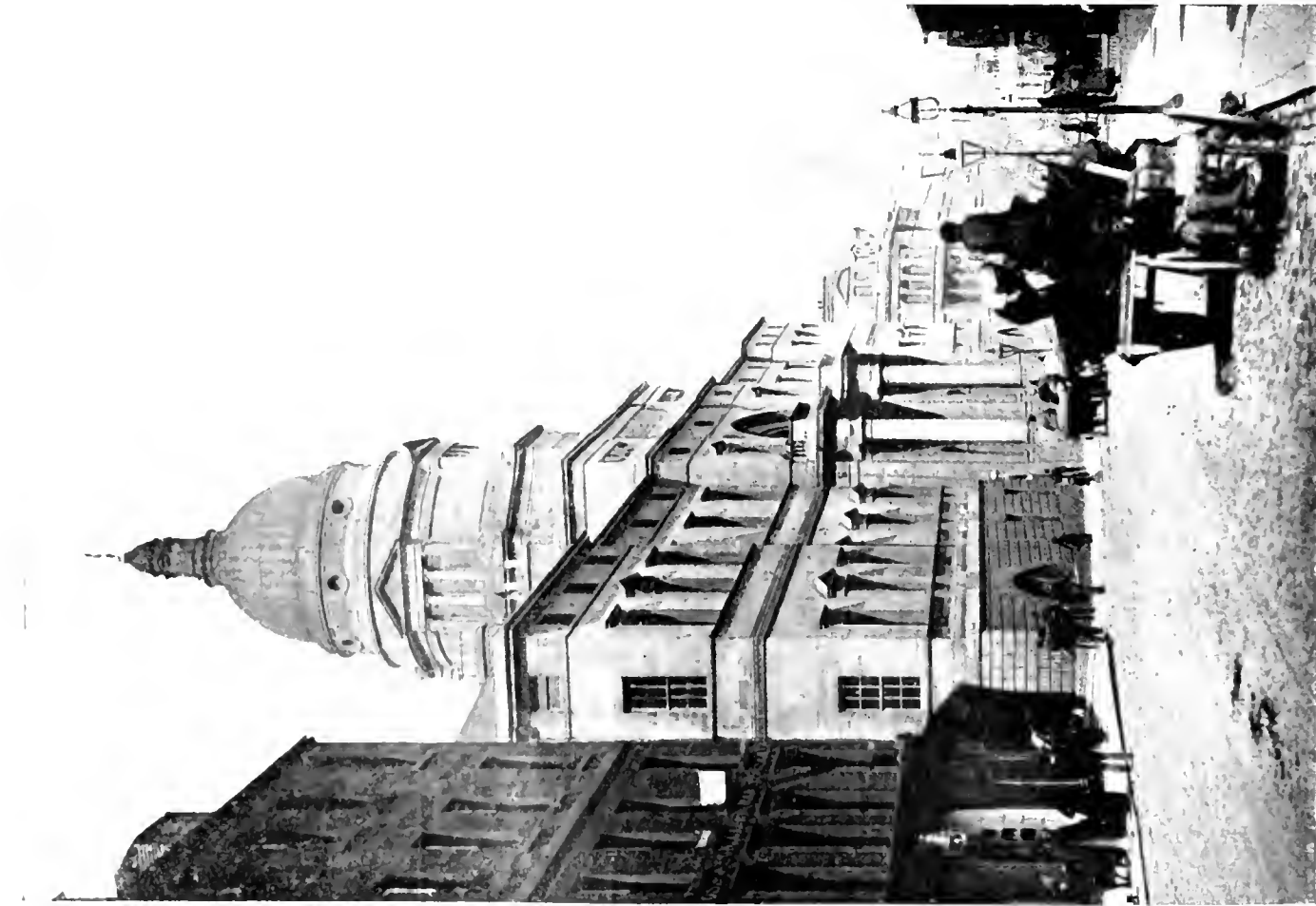
For description of these illustrations, see our review of Mr. John Swarbrick, F.R.I.B.A.'s book on page 472.

Two fragments of the old cross which originally stood on the south-east corner of Caerwent Churchyard, adjoining Great House, have been unearthed in the neighbourhood. The greater portion of the cross, on which Biblical figures are beautifully carved, was discovered many years ago.

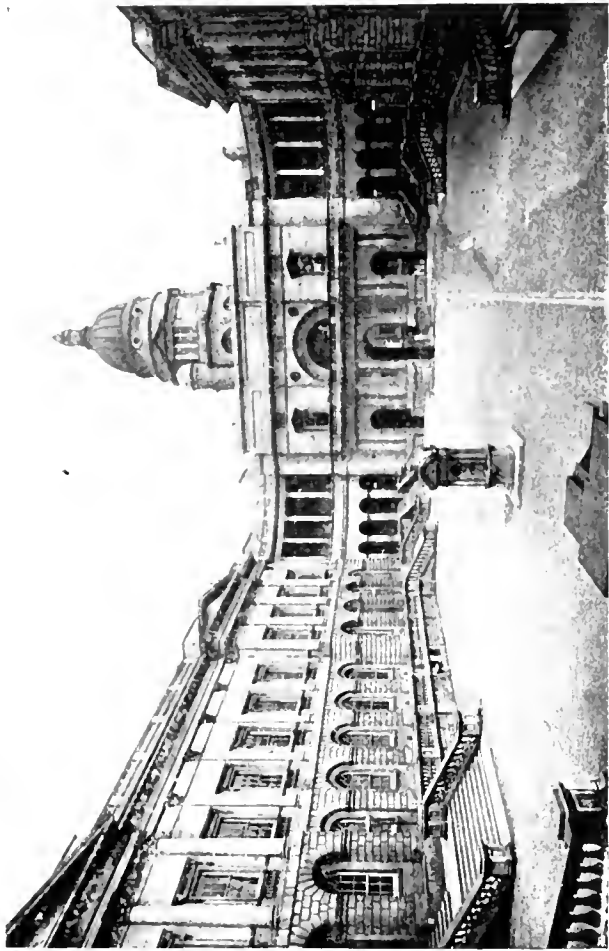
The electricity committee of the Battersea Borough Council recommend the provision of a new sub-station for a rotary converter and extension of the high-tension mains at a cost of £5,725. It is proposed to provide an additional transformer and switchgear for an existing sub-station at a cost of £675, and additional cable at a cost of £730.

The county surveyor of Antrim, Mr. D. Megan, has reported to his county council that a grant of £500 had been secured from the Road Board on condition that the council expended a sum of £1,200 on road improvement work in the Antrim, Ballymena, Ballymoney, Belfast, Larne, and Lisburn rural districts, which had been approved by the councils of those districts.

A new water supply has been inaugurated for the scattered district of Newtown, near Biddulph, Staffs. The inhabitants have hitherto relied for water for domestic purposes from wells. Some time since an extension of the water main was made from the lower part of Biddulph Park. From this point the main has now been carried to the highest point of Biddulph Park district, where a service reservoir, holding over 3,000 gallons, has been constructed, under the supervision of Mr. S. Gibson, surveyor to the Biddulph Urban District Council.



EDINBURGH UNIVERSITY, FROM SOUTH BRIDGE STREET.



THE OLD QUADRANGLE, EDINBURGH UNIVERSITY, LOOKING EAST.

EDINBURGH UNIVERSITY: VIEW IN SOUTH BRIDGE STREET AND TWO VIEWS OF THE "OLD" QUADRANGLE. (From "Robert Adam and his Brothers," by Mr. JOHN SWARBRICK, A.R.I.B.A. Batsford.)



THE OLD QUADRANGLE, EDINBURGH UNIVERSITY, LOOKING WEST.

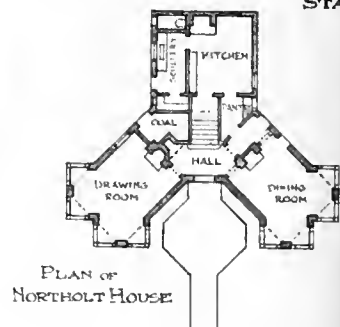




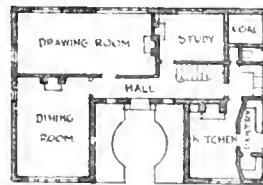
HOUSE AT NORTHOLT



STABLE



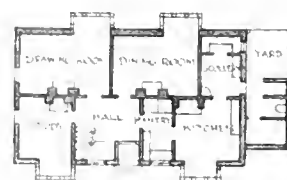
COTTAGE AT MEDMENHAM A



COTTAGE AT MEDMENHAM



HOUSE AT HALSTEAD



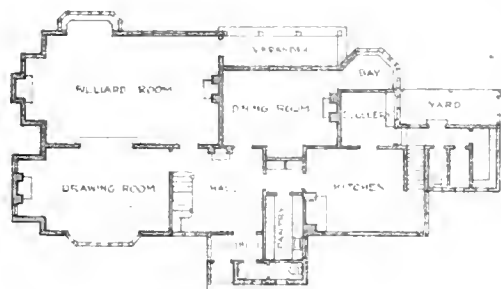
# SMALL COUNTRY HOUSES:

ARNOLD MITCHELL, ARCHITECT.  
17 MANOVER, S.W. LONDON W.

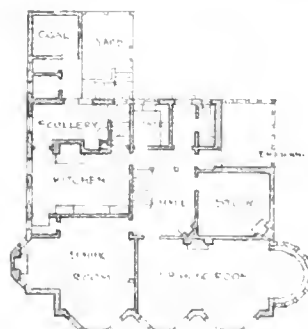
NGBOURNE:



HOUSE AT ROYSTON:

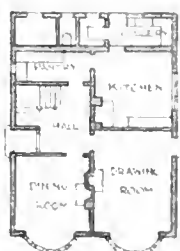


PLAN OF WYKEHAM HOUSE



PLAN OF ROYSTON HOUSE

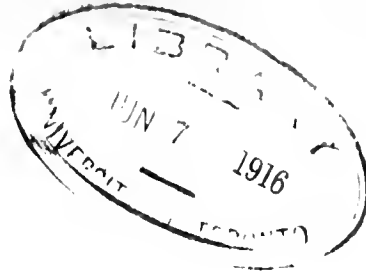
WYKEHAM HOUSE:  
GREAT STANMORE



PLAN OF MEDMENHAM COTTAGE B

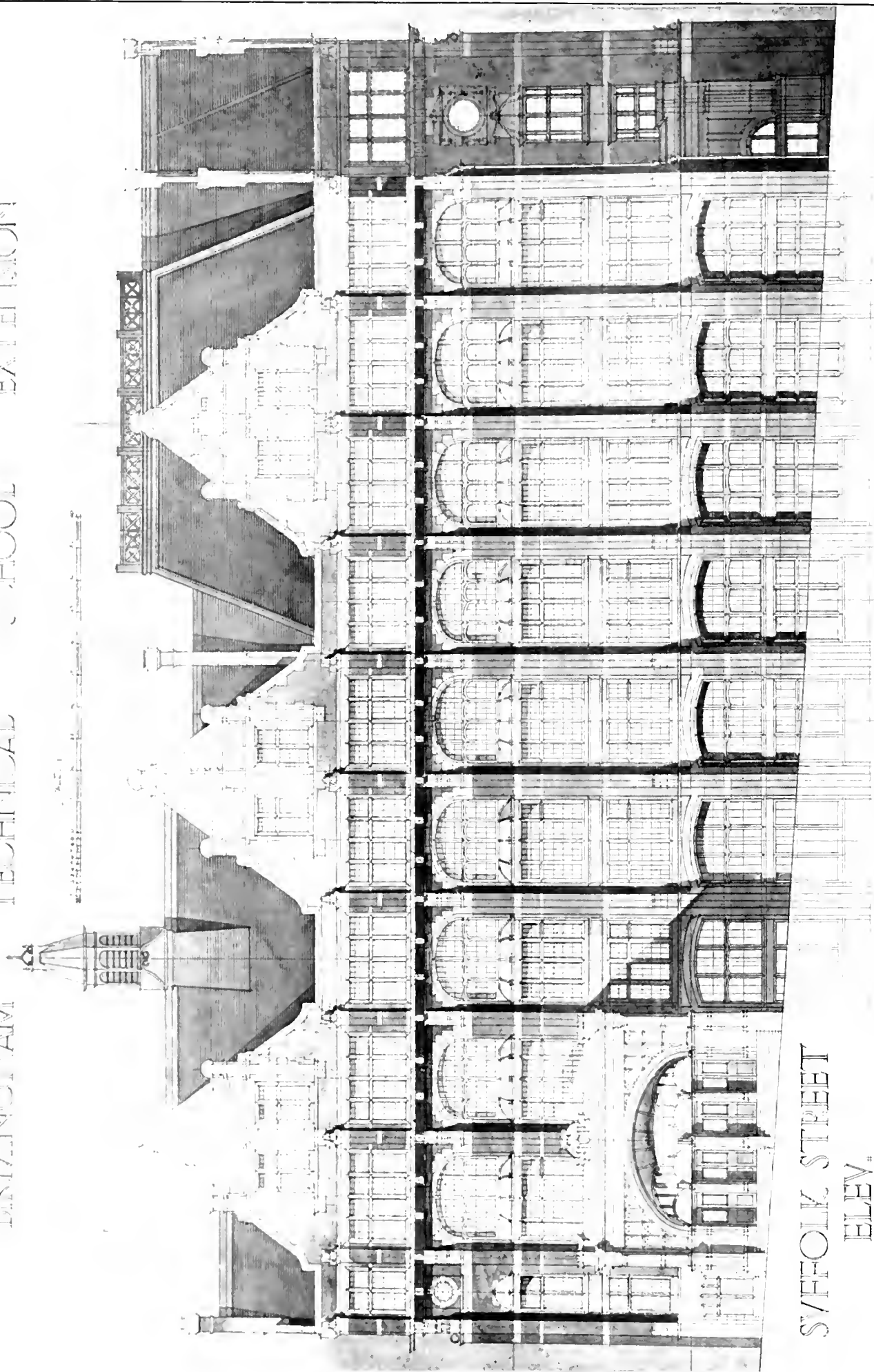






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BIRMINGHAM TECHNICAL SCHOOL EXTENSION

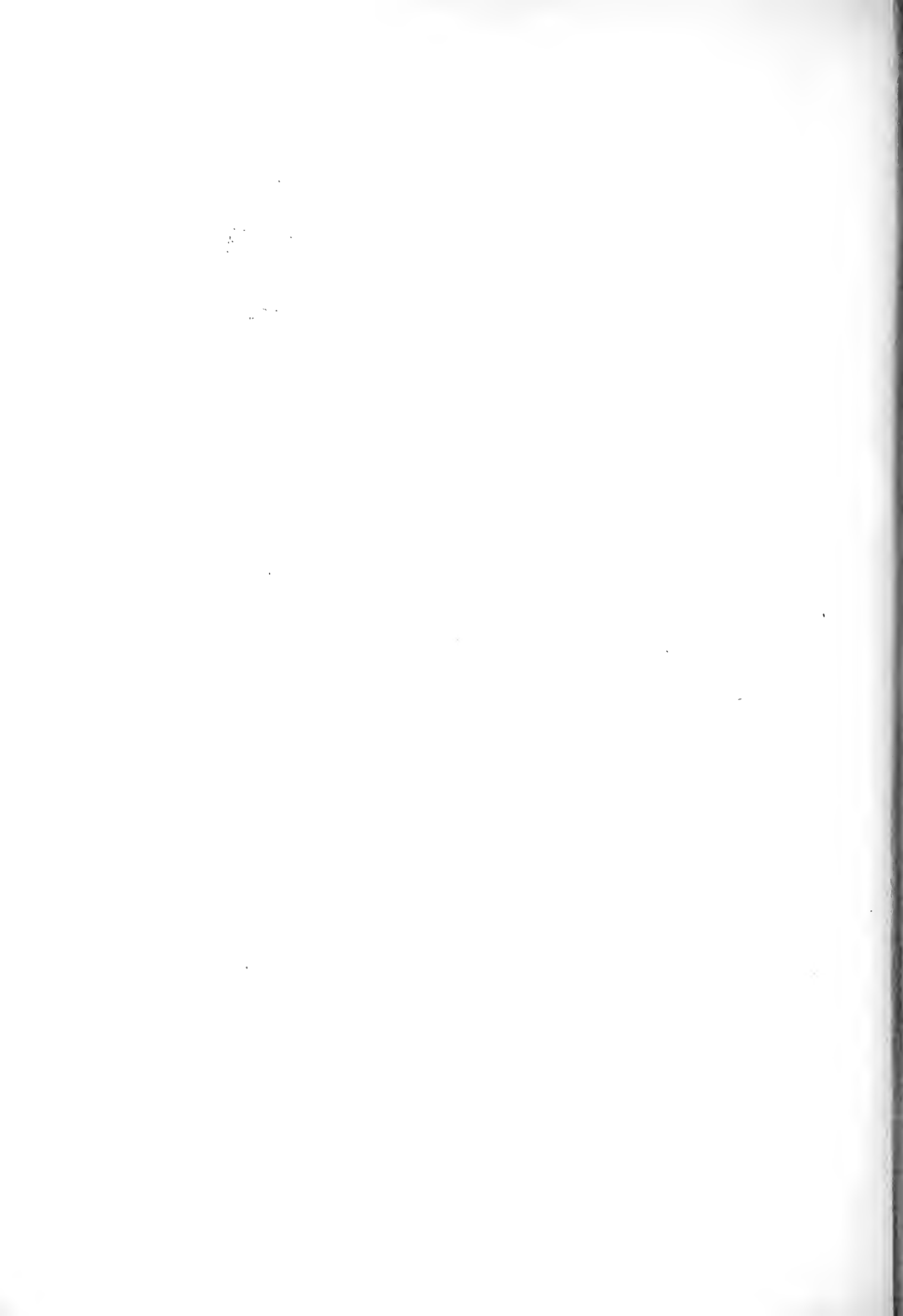


SUFFOLK STREET  
ELEV.

THE MUNICIPAL TECHNICAL SCHOOL, NEW EXTENSIONS, NAVIGATION STREET, BIRMINGHAM: SUFFOLK STREET ELEVATION.  
Messrs. Nicol and Nicol, A.A.R.I.B.A., Architects.



CLAPHAM MATERNITY HOSPITAL: MAIN ENTRANCE.  
Messrs. ALFRED L. HART and P. LUSH WATERHOUSE, F.F.R.I.B.A. Architects.

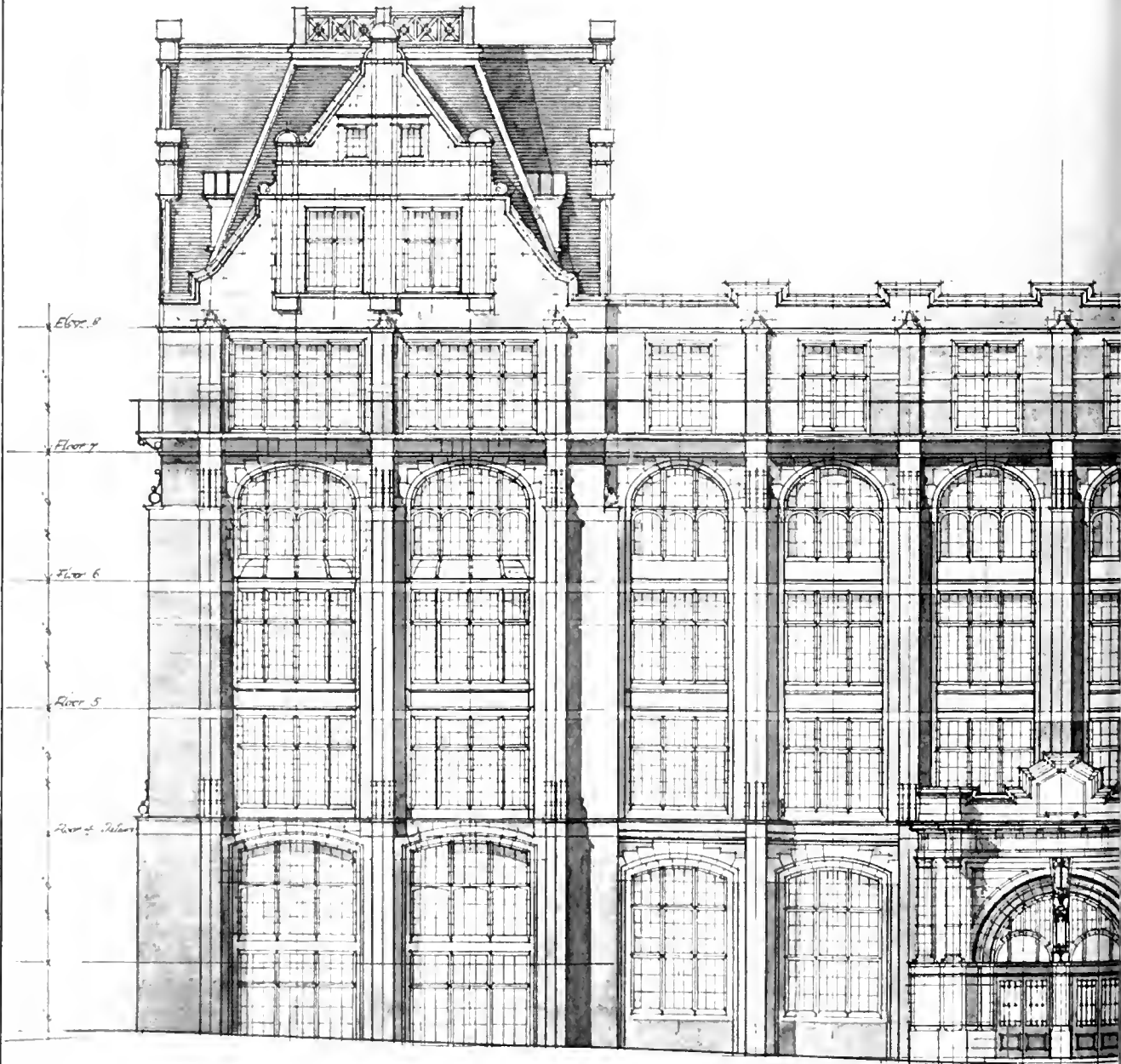




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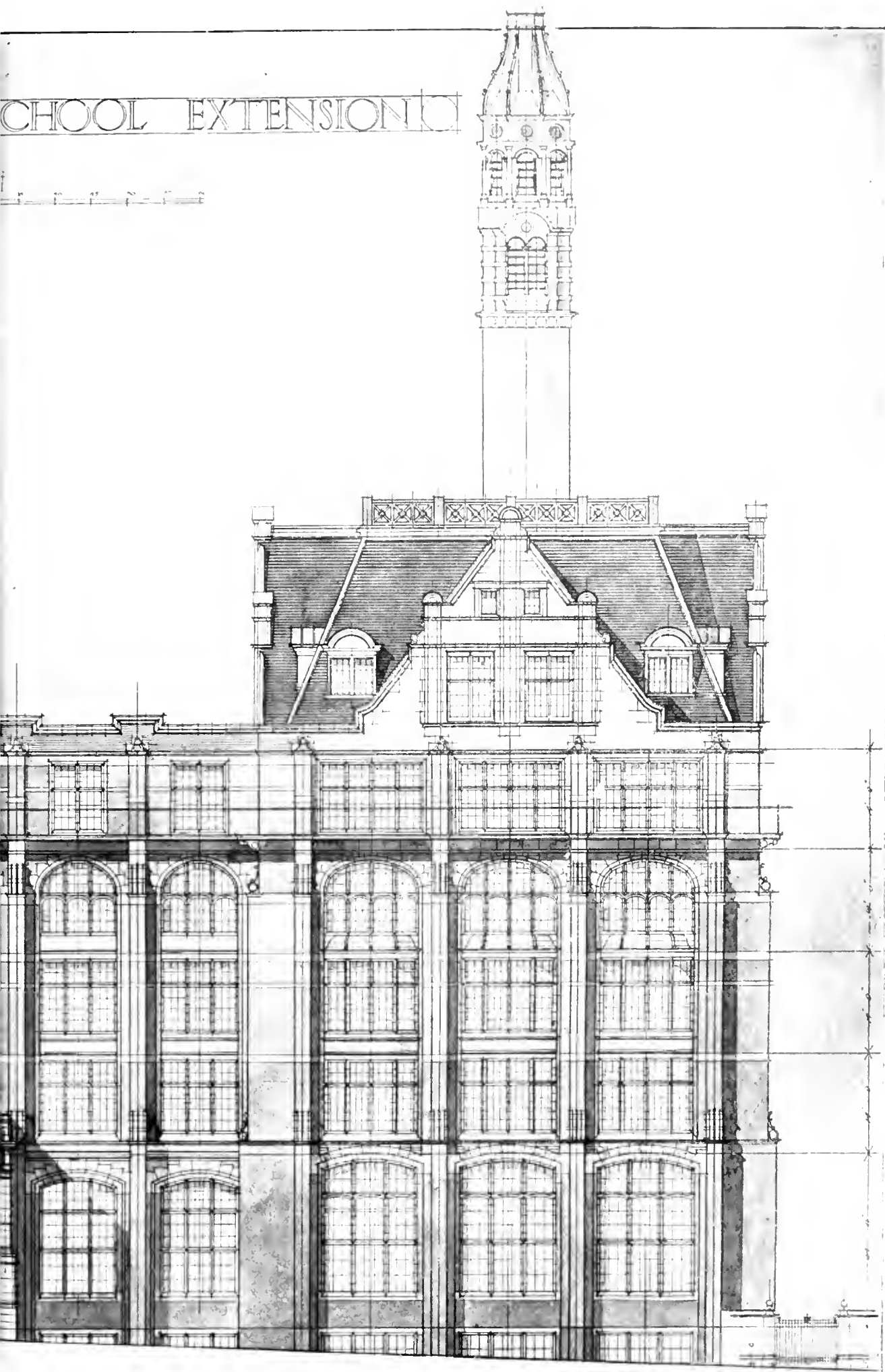
BIRMINGHAM TECHNICAL

SCALE  
1" = 20'





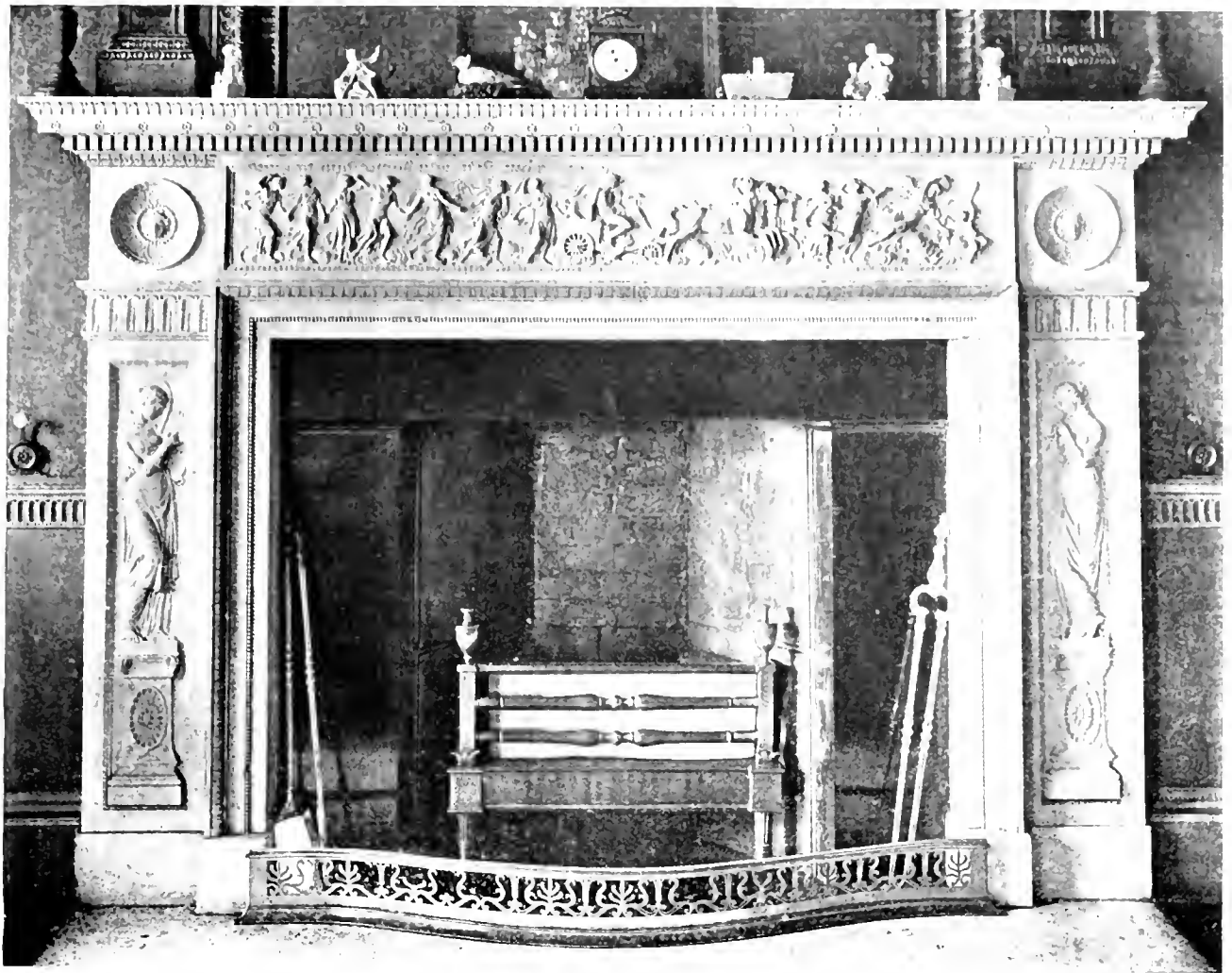
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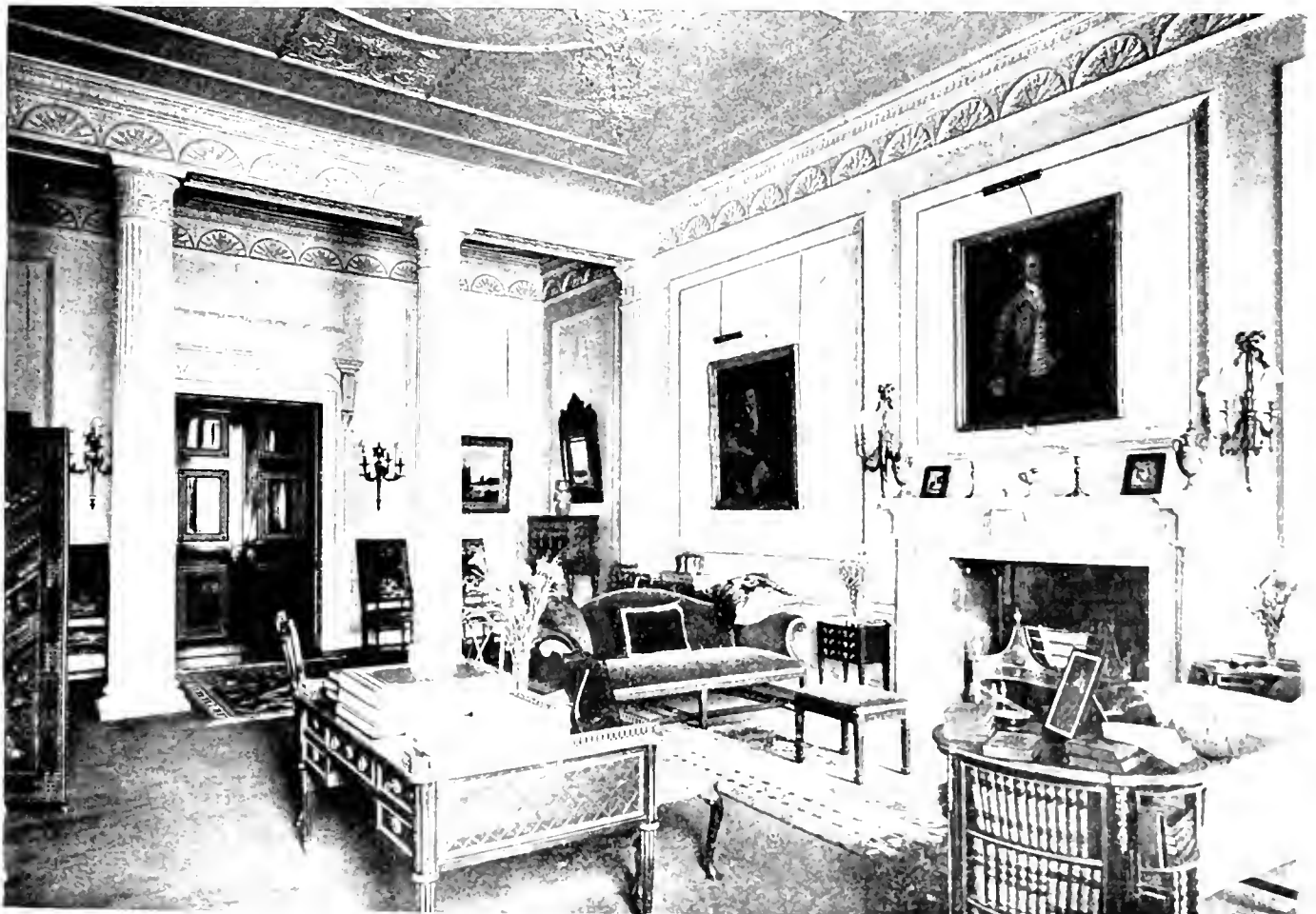
NAVIGATION STREET, BIRMINGHAM FRONT ELEVATION.

AA.R.I.B.A., Architects.





CHIMNEYPIECE, FRONT DRAWING-ROOM, 20, ST. JAMES' SQUARE, S.W.  
(From "Robert Adam and his Brothers," by JOHN SWARBRICK, A.R.I.B.A. Batsford)



MORNING ROOM, CHANDOS HOUSE, QUEEN ANNE STREET, W.  
(From "Robert Adam and his Brothers," by Mr. JOHN SWARBRICK, A.R.I.B.A. Batsford)

## Our Office Table.

Mr. Thackeray Turner, chairman of the Society for the Protection of Ancient Buildings, writes in the *Times* appealing to the custodians of buildings containing valuable glass to protect it by boarding or by removal during the time that air raids may be apprehended. Sir John Furley follows this up by recalling a very simple method adopted in Paris during the siege of 1870 and the subsequent war of the Commune. He noticed at that time that windows generally had been criss-crossed with strips of paper stuck upon the glass. This method undoubtedly saved much destruction of glass from concussion, which often affects a large area, although it is no defence against projectiles. As Sir John remarks, the better and stronger the glass the more liable it is to fracture from concussion, as it has not the elasticity which often saves glass of an inferior quality.

The granite industry in the Mabe, Stithians, and Constantine districts of West Cornwall has been hard hit by the closing down of several quarries belonging to the firm of Messrs. Freeman, Son, and Co., Ltd. Some time since the large quarry at Polkinggo (Stithians), which, when the granite industry was at its height, employed about ninety men, was closed, and has been followed by the closing down of Rosemonoweth (Stithians), which formerly employed about fifty hands; also Treloys (Stithians), Chywoon (St. Gluvias), Main Rock (Constantine), and one or two other well-known quarries in the Mabe district. Granite quarrying has long been the staple industry in these districts, and the outlook is the blackest for many years.

The Royal Scottish Arboricultural Society have passed a resolution demanding that the Government should create a Department of Forestry in connection with the Board of Agriculture for Scotland, with an adequate annual grant for the purpose, and should instruct the Department to prepare, without delay, schemes of afforestation, combined with small holdings and other rural industries, to be put into operation as soon as the war is over. The Council of the Society point out that the area of woodlands in Scotland is about 668,000 acres, or only about 4 per cent. of the whole land area, being the lowest percentage of the countries of Europe (except Ireland and Portugal), and forming a striking contrast to other countries on the Continent, having from 17 up to as high as 55 per cent. of woodlands. The annual value of the imports of timber into the British Isles before the war was about £40,000,000. Between 80 and 90 per cent. of the timber so imported consisted of coniferous or soft woods, of which a large proportion could have been grown in this country. While the demand for home-grown timber is likely to continue long after the conclusion of the war, and large areas of home woods are being cleared to meet the present demand, it is improbable that all or even a large proportion of these areas will be voluntarily replanted, with the result that the already relatively small extent of woods in this country will be alarmingly decreased.

Mr. Frank Green, of Treasurer's House, York, has recently presented to the Victoria and Albert Museum a number of pieces of English furniture, together with several other objects of interest. The furniture belongs for the most part to the period of the later Stuarts and William and Mary, and includes several types hitherto unrepresented in the museum collections. Among them may be specially noted a pair of walnut chairs of about 1700, covered with embroidery in silk and wool representing vases of tulips, carnations, and other flowers, and two stools similarly covered; also a single chair covered in finer embroidery with floral designs. Another chair, with a tall back carved in openwork and a seat covered with embroidery, belonging to the period of William and Mary, is illustrated in Macquoid's "History of English Furniture." Several interesting tables are included in the gift. Of these the earliest may be attributed to the later

years of the seventeenth century. It has legs carved in open spirals, and a top decorated in marquetry and fitted with a panel enclosing a backgammon board. This table also is illustrated in Macquoid's History. Another table of about the same period as the above is of gilt wood with gilt *gesso* top finely ornamented in French style, such as characterises the period of Louis XIV. A third specimen, a side-table, of gilt wood, in the style of William Kent, is a typical example of the massive furniture which adorned the great houses of England during the reign of George II. These pieces are exhibited in rooms 55 and 56 of the woodwork galleries.

## PROFESSIONAL AND TRADE SOCIETIES.

**AUCTIONEERS' AND ESTATE AGENTS' INSTITUTE.**—The annual meeting of the Auctioneers' and Estate Agents' Institute of the United Kingdom was held at the offices, 34, Russell Square, on Thursday, the chair being occupied by the president, Mr. J. G. Head. The report of the council stated that the Institute had a membership of 3,204, and that its finances were in a satisfactory condition. Of the candidates who presented themselves for examination, 145 were successful, but the war was responsible for the number examined being less than in the previous year. Early in 1915 the council decided to issue an appeal on behalf of the "Star and Garter" Fund for the establishment of a permanent home for those soldiers and sailors who had been totally disabled in the war. As a result of the appeal for the £21,500 necessary to complete the purchase of the Star and Garter hotel property, on Richmond Hill, the council announce that there was a magnificent response, for not only had the necessary amount of purchase-money been raised, but there would be a large sum over that amount, which would be appropriated to the endowment of beds in the home. The total amount collected by the Institute at present was over £42,000. The Queen had graciously promised to accept the gift of the Star and Garter, and to hand it over to the British Red Cross Society. The British Women's Hospital Fund Committee were raising the money necessary for the erection of the new building, and the British Red Cross Society had undertaken to equip and maintain the home. The Institute's roll of honour contained the names of 625 members who were serving with his Majesty's forces. The president, in moving the adoption of the report, stated that efforts had been made by the council, both in the direction of a Charter and a Registration Bill, but both matters were at the moment held up by the war conditions. They were, however, not abandoned, and would be pursued with unabated vigour at the proper time. The Star and Garter scheme, which was started with the aim of raising £21,500 for purchase of the hotel, had realised over £42,000, a sum which would allow of a handsome surplus being devoted to the endowment of beds in the name of the Institute. Mr. W. R. Greenslade, Tamerton, seconded, and the report was adopted. The following members of the council were unanimously re-elected: Mr. David T. Alexander (Cardiff), Mr. James Buxton, M.P. (London), Mr. Arthur W. Brickett (Tunbridge Wells), Mr. B. F. Anson Breach (London), Mr. Henry D. Buckland (Windsor), Mr. J. Beaumont Garland (Newcastle-upon-Tyne), Mr. J. George Head (London), Mr. George E. Kent (Portsmouth), Sir Robert J. McConnell (Belfast), Mr. E. Walter Rushworth (London), Mr. W. Anker Simmons (Henley-on-Thames), Mr. William Thomson (Liverpool), and Mr. William Weatherhead (Keighley). The Council have since unanimously elected Mr. William H. Bradwell as president for the ensuing year. The new president, who is senior partner of a leading Nottingham firm, was elected a Fellow of the Institute in 1904, Vice-President of the Council in 1913, and was Chairman of the Midland Counties Branch for the year 1908-9. Last year he was president of the Midland Counties Tenant Right Valuers' Association.

## Engineering Notes.

**KEADBY.**—The new bridge over the Trent at Keadby is to be opened for traffic on Monday, the 22nd inst. When the Great Central Railway began, in 1911, to widen their track over the Trent, the local authorities decided to join in the making of a bridge wide enough for highway traffic. The contract for a rolling lift bridge was given to Sir Wm. Arrol and Co., Glasgow, and the cost of construction has been about £150,000. The Lindsey County Council contributed £20,000, the Brigg Rural District Council £5,000, the Scunthorpe and Frodingham Councils £2,500 each, and the smaller districts in proportion. The span weighs over 3,000 tons, and is raised by electricity in less than two minutes. The work has been carried out from plans by Mr. J. B. Bell, chief engineer to the railway company, under the supervision of Mr. S. L. Murgatroyd, assistant engineer, and Mr. Thropp, the county surveyor for Lindsey.

**MILLHILL, CUMBERLAND.**—The new Esk Bridge over the river Sark on the Great North Road from Carlisle to Gretna Green was opened last week. It replaced a cast-iron bridge built in 1820 by Thomas Telford, a steep and narrow structure of three spans, 150 ft. 105 ft., and 105 ft. in length, reckoning from south to north. The new bridge has as its only ornamentation a chamfering of the arch ribs and an architectural treatment of the parapets and piers. Designed by the county surveyor and bridgeworker, Mr. W. Finch, it consists of three arch spans over the river, with two short girder span flood openings in the north approach. The central arch span is 175 ft. from centre to centre of piers, giving a clear span of 165 ft., with a rise of 15 ft. The two shore spans are each 138 ft. 6 in. clear, while the flood arches have each a span of 30 ft. The foundations of the abutments and piers rest on freestone rock, with about an average of 12 ft. below the springing level. The width of the carriageway over the bridge between the parapets is 24 ft. The bridge has been designed to carry a moving load of 64 tons, and has cost over £16,000.

**PADSTOW HARBOUR.**—To provide increased accommodation and facilities for dealing with the growing fish traffic and with a view to encouraging the development of the industry and the shipment of china clay, the L. and S.W. Railway Company have carried out important improvements to their premises at Padstow. At the covered fish market the lack of space has been met by extending the platform and nearly doubling the roof area. Increased siding and road accommodation has been provided on the quay by the construction of the first section of a new dock wall of over 100 yards in length, and filling in behind this for a width of about 40 ft. The face of the new dock wall has been constructed of cement blocks, each weighing three-quarters of a ton. The total height of the wall is 27 ft. The new quay area having been raised to the requisite level, a new cart road was laid on the site, to be followed in due course by additional sidings. Preparations are now in hand for the erection of a double tier of fishdealers' offices to take the place of the existing unsightly sheds. When the work is completed Padstow will have a wet dock of about 2½ acres, with a depth of water of 12 ft. below high water mark of lowest neap tide at all states of the rise and fall of the river Camel.

The Basingstoke Rural District Council have agreed to grant Mr. R. Forrester, their surveyor, a war bonus.

The Yeovil Rural District Council have before them a scheme, estimated to cost £1,300, for the provision of a water supply for Burwick and Stopford. The plans have been prepared by the sanitary surveyor, Mr. N. G. Fish.

The Ministry of Munitions having assented to the carrying on the work of the strengthening and improvement of Harrow Manorway and Sewell Road, Plumstead, the borough council of Woolwich are applying to the London County Council for sanction to the borrowing of the council's share of the cost, £1,418. This amount represents 25 per cent. of the total estimate of £5,672.

## Building Intelligence.

GLASGOW.—The Right Hon. J. A. Pease, P.C., M.P., Postmaster General, visited Glasgow on Tuesday in last week for the purpose of formally opening the General Post Office, in George Square, which has been remodelled and extended at a cost of £120,000. The alterations have been of an extensive character, and have taken five years to accomplish. Originally the building was in the form of a T. To provide accommodation for the new offices required the ground forming the wings behind the George Square frontage was purchased, and the remodelled building now occupies the whole of the square piece of ground bounded by George Square, Hanover Street, Ingram Street, and South Frederick Street, and rises to a height of seven stories. The general object of the alterations was to provide additional sorting space and proper retiring rooms for the different sections of the staff, and also to concentrate in one building the postal staff, the engineering staff, and the telephone and administrative staff. The postmaster's staff is now situated on the first floor and part of the second floor. The district telephone manager's office occupies the whole of the remaining floors of the west wing. The superintending engineer's office occupies the third and fourth floors of the east wing, and will be entered from Ingram Street. A dining-room capable of seating 300 persons has been provided on the fifth floor for the use of the staff. The old posting lobby has been abolished, and the new public office will now run from end to end of the building fronting the square, and will provide the longest public counter in any Post Office in the United Kingdom, extending as it will to 190 ft. The woodwork of the public office is Honduras mahogany, and the walls are lined up to the height of the doors with Italian marble. The work was begun in 1911 by Mr. W. T. Oldrieve, F.R.I.B.A., Edinburgh, late principal architect for Scotland to H.M. Office of Works, and has been completed under the direction of Mr. C. J. W. Simpson, his successor in the post. The extra ground required cost about £43,000, and the total value of the contracts amounted to fully £75,000.

SLATEFORD, EDINBURGH.—To cope with the increased traffic at Slateford Station in consequence of the erection of the new cattle market by the Corporation of Edinburgh, the directors of the Caledonian Railway Company have authorised the reconstruction of the station. It is intended to lengthen the passenger platforms to 600 ft., and to increase them in width. The existing station buildings are old fashioned, and built of timber, and new platform buildings are to be erected in their place. The front of the buildings towards the platform will be constructed of brick to the level of the window sills, while above that level they will be of timber, and there will be a verandah roof projecting 7 ft. all along the length of the buildings. The walls of these, where not under cover of the verandah, will consist of brick, faced with rough-cast. A new approach stairway from Slateford Road at a point opposite Chessers Avenue will give direct access to the station platform for passengers going to Edinburgh, while the opposite platform will also have an access to Slateford Road at the west end of the station. To take the place of the existing timber footbridge, a new bridge of steel lattice girders will be provided. The contract for the new buildings has been let to Mr. John Shirlaw, Carlisle, while the heightening and lengthening of the platforms is being carried out by the company's men. The new over-bridge will be provided by Messrs. P. and W. Maclellan, Limited, Glasgow.

Mr. J. Bowen has been appointed assistant surveyor of Wimbeldon.

The old Baptist College in Stokes Croft, Bristol, of which the foundation-stone was laid by Dr. Ryland in August, 1805, was recently vacated on the opening of the new building in Tyndalls Park, and has now been purchased on behalf of the First Church of Christ Scientist.

## OBITUARY.

We regret to announce the death, in his sixtieth year, of Mr. Robert Alexander Briggs, F.R.I.B.A., of Amberley House, Norfolk Street, Strand, W.C. Mr. Briggs was at work on Saturday last, but was suffering from gout, and contemplated a visit to Harrogate. On Monday night, however, he had a seizure and passed away on Wednesday. He was born in London and educated at Sherborne School, Dorset. Having served his articles to the late Mr. E. C. Lee, he was for a while in the office of the late Mr. H. L. Florence. He commenced practice in Devonshire Square, E.C., and removed, twenty years ago, to Amberley House. For some eighteen months or two years, until 1913, he was in practice with his former pupil, Mr. Browning. Early in his professional career Mr. Briggs specialised in house-planning, and developed the bungalow type then coming into fashion; and to the end he was familiarly known to his many friends as "Bungalow Briggs." He carried out many commissions for the Hon. Percy C. Allsopp, including his residence near Worcester, and hotels and other buildings for the brewery firm with which he was associated, and also for Mr. Horlick, whose mansion near Cheltenham he enlarged by the addition of a ball-room and other features. Among the works by Mr. Briggs illustrated in our pages were bungalows at Bellagga, Surrey (see *Building News* for February 22, 1889), Queen's Gate Hall (December 6, 1889), house at Eastbourne (May 22, 1891), two bungalows in Tudor style from drawings hung at the Royal Academy Exhibition (June 26, 1891), house in Seville Street, W. (two interiors, September 2, 1892), house at Northwood, near Pinner (November 11, 1892), pair of houses, North End, Hampstead (December 15, 1892), house, Woodford, Essex (July 19, 1895), private chapel Worcester, for Hon. P. C. Allsopp, bronze door to (October 6, 1899), memorial at Evesham to Simon de Montfort (February 2, 1900), house in Kensington Park Road (April 13, 1900), mansion at Farnborough for Hon. J. Scott Napier (August 3, 1900), Cowley Manor House, Gloucestershire (September 6, 1901), business premises in Brompton Road, Kensington (September 29, 1905), house on D'Abernon Common (November 12, 1909), Furze Hill, Burch Heath, near Banstead (August 9, 1912), and house at Kingswood, Banstead (May 30, 1913). He published several illustrated volumes of designs for houses, some of which went through four and five editions, including "A Book of Bungalows" (B. T. Batsford), 1891; "Bungalows and Country Residences," 1901; and "Homes for the Country," 1901; and also a book on "Pompeian Decoration" (in colour, B. T. Batsford), 1912. For several years he was a popular and hardworking member of the A.A. excursions. An excellent draughtsman, he was also a skilled musician, and a good singer, and had composed several songs. He gained the Soane Medalion in 1885, having joined the Royal Institute of British Architects as an Associate the previous year, and had been a Fellow of the Institute since 1892. His membership of the Architectural Association dated from 1877. His last work at the Institute was to bring together and arrange at 9, Conduit Street, the recent comprehensive collection of drawings by William Burges, A.R.A., and to contribute to the R.I.B.A. *Journal* a scholarly review of the exhibition. Mr. Briggs leaves a widow, but no family.

The death occurred on Monday evening in last week, at the residence of his eldest son, Mr. Raymond Bennett, in St. Helen's Street, Ipswich, of Alderman Frederick Bennett, J.P., building contractor, formerly of New Street Works. He succeeded his father, the late John Bennett, in the business of builder in St. Clements, Ipswich, and for many years was associated in the enterprise with his brother, the late Mr. J. B. Bennett. Among the contracts, over seven hundred in number, carried out by the firm were the erection of the Museum and Free Library in High Street and various adjuncts; others included the Naval Barracks at Shotley, the Waterside Works, shops forming part of the Orwell Works, buildings for the late Duke of Hamilton at Easton, near Wickham Market, and for the late Sir Cuthbert Quilter at

Bawdsey Manor. Mr. Bennett retired into private life about two years ago, and he lived for some time at Felixstowe. Mr. Bennett was one of the oldest members of the Ipswich Corporation, his membership dating from November 2, 1860, until his demise.

Captain Victor Eustace Reynolds, West Yorkshire Regiment, who was killed on May 4, was born in 1873. The son of Mr. Henry Reynolds, of Beccleshurst, Cheshire, on leaving Shrewsbury School he devoted himself to art, and became a student at the Slade School. After working at painting for some years in Florence and Paris he took the posts of art master at Aske's Haberdashers' School at Cricklewood and the master at the evening classes at Lambeth Art School. On the outbreak of war he enlisted in the University and Public School Corps, and went into training at Epsom. In June, 1915, he was gazetted to the West Yorkshire Regiment. He married a daughter of the late Frank Holl, R.A., and leaves a son.

## LEGAL INTELLIGENCE.

SPENCER, SANTO AND CO. V. H.M. OFFICE OF WORKS.—This case has been in progress throughout the week before Mr. Pollock, Official Referee, at the Royal Courts of Justice. It is a claim by the debenture holders of the plaintiff company, a firm of builders, for £97,107, the alleged balance due on the contract for £473,000 for building the new Local Government Board offices. The Office of Works stated that the contractors were only entitled to £406,000, not 473,000. Mr. Holman Gregory, K.C., Mr. J. A. Compston, K.C., and Mr. Inman are appearing for the plaintiffs; and Sir R. B. Acland, K.C., Mr. C. F. Lowenthal, and Mr. H. M. Given for the defendants. With such an array of counsel engaged and so large a sum at stake, the hearing promises to be a protracted one, and a period of another eight weeks is suggested by those concerned as the probable duration. The case was opened on Monday in last week; only witness as yet called is Mr. Patten, the clerk of works during the erection of the buildings, and he is expected to be in the box at least until the end of next week.

INCREASE OF RENT ACT.—In the Birmingham County Court his Honour Judge Amphlett, K.C., has delivered reserved judgment in a test action in which Messrs. Sharp Bros. and Knight, timber merchants, of Shobnall Road, Burton-on-Trent, sought to recover from Mr. Henry Chant, of 191, Kenelm Road, Small Heath, the sum of 5s. arrears of rent at the rate of 6d. a week. His Honour was asked to give a decision as to the rights of tenants to deduct from current rent payments any increase above the pre-war rate paid after November 25, 1915. In his judgment his Honour said the Increase of Rent and Mortgage Interest (War-time Restrictions) Act possessed many most intricate provisions, and had the appearance of having been drawn up somewhat hurriedly. It was pre-eminently an emergency measure with a general application, meant to prevent abuses, and all classes, including property owners, must be prepared to make sacrifices. In the present circumstances landlords' hands were firmly manacled, but the tenant might take in lodgers and receive from them far in excess of what they had to pay for the rent. He did not say it was an illegal act, *per se*, for the landlord to raise the rent, but if he did so, and the tenant declined to pay such a procedure would certainly not obtain the sanction of a court of law. If the tenant were to consent to such an increase, and subsequently declined to pay the amount of such increase, the amount would be, in his opinion, irrecoverable. But if the tenant were to consent to the proposal he did not think that the court would interfere if he subsequently invoked its assistance to recover the amount which he had overpaid. According to his interpretation of the Act the action in this case failed. He entered judgment for the defendant, and granted stay of execution for fourteen days.

"OLD MASTERS" OR "PORTRAITS".—In the Court of Appeal on Friday judgment was delivered by the Master of the Rolls and Lords Justices Phillimore and Warrington in the case of "Layard v. Rosborough and Others," in which the plaintiff, Major A. Layard, R.E., appealed from a decision of Mr. Justice Astbury in the Chancery Division in favour of the trustees of the National Gallery. The question was whether certain pictures passed under a bequest of pictures ("except portraits") from Sir H. A. Layard's collection lately in his



house at Casa Capel, Venice, to the Trustees of the National Gallery or came within the gift by the testator of portraits of himself and his family "and other portraits" to his nephew, Major A. A. Macgregor Layard, the present plaintiff. Mr. Justice Astbury decided in favour of the trustees, and the plaintiff appealed. The pictures in dispute between Major Layard and the National Gallery were: Portrait of a member of the Averoldi family, by Morello da Brescia; portrait of one of the Salvagno family of Bergamo, by Domenico Moroni; portrait of a member of the Lupi family, by Moroni; portrait of Sultan Mohammed II. by Gentile Bellini; portrait of Lorenzo de Medici, by Ticepino Lippi or Raffaellino del Garbo; portrait of Madame Marie Ann Schotten, by Van Dyck; portrait of himself and wife, by Garofalo; portrait of a young man, by Vivarini or Antonella de Messina; portrait in pastel by Rosalba; portrait of Rosalba, by Pietro Longhi; portrait of a man, by Moroni; portrait of a man in a black cap, by Titian or Giorgione; portrait of the Doge Marcello, by Gentile Bellini; and the portrait of a lady and child and the portrait of a gentleman, both by Netscher. The Master of the Rolls, in giving judgment, said that all but the last two pictures in the list came from the testator's Italian residence at Venice, and were in his gallery of old masters there. The testator was a well-known collector of pictures, particularly of the Italian school of the fifteenth and following centuries. He was a writer on Victorian art and a well-known connoisseur. In his house in Venice he had a collection of old masters, mostly kept in a separate suite of rooms; he had also a large number of portraits of himself, his wife, and members of his family, but these were for the most part in his London house. The mere fact that some pictures might have been portraits of some person or persons, known or unknown, in the fifteenth century was irrelevant. Here the National Gallery had, under the powers of the will, "selected" all the disputed pictures "for the use and enjoyment of the British public for ever as part of the national collection," and to his mind they were entitled so to do. The Lords Justices concurred. These pictures, which are of great artistic merit and interest, will, therefore, be added to the collection in Trafalgar Square.

#### TRADE NOTES.

Boyle's latest patent "Air-Pump" ventilators have been installed at the New Hippodrome, Linden Crescent, Folkestone.

Messrs. Mitchell's fishing premises, Great Yarmouth, are being supplied with Shorland's special exhaust ventilators by Messrs. E. H. Shorland and Brother, Ltd., of Paisley, Warrington.

Refr asphalt concrete paving is being largely used in connection with the flooring of new aeroplane sheds for His Majesty's Government. This asphalt concrete is laid by William Shepherd and Sons, Limited, Rochdale, whose works are at Peak Forest, Derbyshire, and Miller's Dale, near Buxton.

In underground structures the most troublesome work a contractor has to overcome is the prevention of flooding. A grit chamber at Huntingdon, through which water was continually percolating, has been made perfectly watertight. We learn that the result was achieved by the use of Pudloed cement concrete.

The corporation of Plymouth have received the sanction of the Board of Trade to borrow £111,706 for the purchase of the Devonport and District Tramway Co.'s undertaking.

The Warwickshire County Council have authorised the county surveyor to improve the 2½ miles of road between the bottom of Meriden Hill and the Coventry city boundary at an estimated cost of £6,455.

Mr. A. G. Drury has held at Rochford a Local Government Based inquiry into an application from the rural district council for sanction to borrow £3,500, supplemental loan for works of sewerage and sewage disposal for the parish of Rochford. The clerk, Mr. W. Harding Roberts, stated that the works were finished with the exception of the machinery. The latter was ready, but the railway company would not accept delivery. So far no house connections had been made; they could not get on with them until the machinery had been installed. In November, 1913, the estimate prepared amounted to £9,100, based on pre-war prices. The tender accepted by the council, the lowest, was £10,840. The actual cost of the scheme when completed would be £12,477.

## Correspondence.

### ARCHITECTURAL PERSPECTIVE DRAWINGS.

To the Editor of THE BUILDING NEWS.

SIR, The pair of perspectives from the Royal Academy, so well reproduced in THE BUILDING NEWS this week, furnish my pretext for troubling you with a few remarks upon this perennial subject. The old style of pen-and-ink draughtsmanship, which had many prime advantages, has given way to the more fashionable methods inculcated by Les Beaux Arts Schools in Paris, or they have been given up in favour of the dashing water colourists employed nowadays by those who can afford such luxuries. Very few men in active practice preserve their enthusiasm sufficiently warm to follow the better plan of making their own show drawings. Some, of course, do not possess the ability to do this, and ever since the professional architect-practitioner came into being draughtsmen have been engaged more or less on the same lines as they are now. It is not my purpose to dilate upon historic matters, and I am not going into matters of technique. It must be accepted that the oncoming generation naturally reckons with a questioning eye the productions of its immediate predecessors, thinking such performances can be easily improved upon. It would be a very bad day if young people were not actuated by such conclusions, but they are not infallible. I grant them this that the stereotyped style of over-behugged building pictures of, say, the late 'sixties can well be forgotten without regret. The question, however, remains as to the gain given us by the Arts d'Agreement of the Beau Monde now holding the field, and I doubt if the assumed advance is after all truly so, especially in respect to scale and composition. It is not worth while to discuss the dirty scribble or smudge type of affectation supposed to secure imaginative scope and add tone to the washed-in cartoons of the chic architectural draughtsman. Such performances may do for competitions, as they are absolutely misleading and must induce indifferent buildings, the actualities of detail in execution being intentionally befogged in order to obtain an empirical effect.

I beg to direct attention to one or two points exemplified by the two perspectives already alluded to, and suggest the evident want of relative size between the scale figures in the boat appearing in Mr. J. A. Swan's clever water-colour sketch and the gatehouse buildings, and bridge so picturesquely designed by Mr. Paul Waterhouse for an unusual site at Mount Melville, in Fifeshire. This difference is seen by the dimensions of the sort of pollarded trees, which, so far as the drawing goes, might be willows. Be that as it may, the trunks seem to take all sense of size out of the architecture by upsetting its proportions.

Messrs. Smith and Brewer's Part nouveau style of drawing in parallel perspective shows Messrs. Heal and Son's new premises in the Tottenham Court Road somewhat to a disadvantage, and mainly so by the accessories introduced without much recognition of architectural construction. The awkward file of fashionable females placed vertically directly under one of the main divisional piers of the facade brings an essential line of the building contrivance right down to the margin of the composition, and this is aggravated by cutting off the skirts of the predominant lady, already aggressive enough. There seems to be no base to the picture. On a flat plane like the Tottenham Court Road, from side to side, the heads of the pedestrians ought all to be on one and the same approximate level. They are not walking down hill, though the foreground and pavement appear to fall very rapidly away from the frontage. If that actually were so the vehicles are entirely out of drawing: the off-side wheels of the carriage do not appear at all. The street is water-logged, showing needlessly elongated reflections vastly greater than the dwarf piers which are supposed to cast this repeat, and yet the horizontal fascia and cornice do not come in the

reflection. The architects had enough difficulties to cope with in scheming a shop-fronted basement without these vagaries, and the addition of the banners above is a needless complication of a superabundance of vertical accentuation. I doubt if either of the architects had made the drawing such mistakes would have occurred, but one can only speak of what the Academy has chosen. I am etc.,

AN OLD TEE SQUARE.

#### CHIPS.

Plans have been prepared for the erection of glassworks on half an acre of ground near the bridge canal at Alperton, near Sudbury, Middlesex. There will be a shaft 55 ft. high.

The *Stone Trades Journal* notes that female labour has been introduced into the Aberdeen granite polishing trade by one firm. It is not expected that the employment of women in the trade will be developed to any great extent.

The urban district council of Quarry Bank have decided to consider in committee a suggestion by the surveyor, Mr. A. Furber, that wooden habitations be allowed, owing to the present high prices of better fire-resisting materials.

Messrs. Willeox and Raikes, of Birmingham, have been asked to advise the City Corporation of Chester upon the questions that have arisen with the Hawarden Rural District Council in connection with the sewerage of East Saltney.

Builders' work on the nave of the Episcopal Cathedral of St. John the Divine, in New York City, which will be the largest church in the United States, was begun on May 8. The work is expected to take five years and to cost nearly \$15,000,000.

At Wigginton, Oxon, the wooden floor of the thirteenth-century parish church has been found to be decaying from dry rot, and it has been decided to relay it with tiles, under the direction of Mr. Walter Tapper, of St. John's Wood. The church was partially restored in 1885.

The Holborn Borough Council is to give a trial for three months to a new motor road-sweeping machine, which not only sweeps the road, but at the same time collects the refuse in a closed receptacle somewhat in the manner of a carpet vacuum sweeper. It is estimated that one machine will replace eighteen men.

An area showing signs of a lengthy occupation in prehistoric times on the north slopes of the Surrey Hills has recently been discovered at Waddon, close to Croydon. Evidences of the making of tools and the flint tools themselves, which appear to be of several types, and perhaps of widely different periods, have been found.

A new altar in memory of the late Lieut. E. W. Saunders, 1st Cam's Regiment, has been dedicated in St. Mary's Church, Whiteley, on the anniversary of this gallant young officer's death at Ypres. The altar was designed by Mr. W. S. Weatherly, of Buckingham Street, Strand, W.C., and carved in English oak by Messrs. J. Thompson and Son, Peterborough.

Mr. A. V. Paton has presented to the National Trust, as a memorial of his brother, Captain M. B. Paton, South Lancashire Regiment, who lost his life in Gallipoli, and of other Wirral men killed, an open space of about eighteen acres of moorland adjoining Thurstaston Common, Cheshire. By arrangement with the National Trust, the Birkenhead Corporation will take over the management.

The corporation of Wolverhampton have decided to make application to the Local Government Board for sanction to borrow £17,160 for the provision of additional boiler-house plant at the electricity works. This is part of a large scheme prepared by Mr. S. T. Allen, borough electrical engineer, for extending the works at an estimated cost of £53,900, in order to cope with the anticipated demand for current in 1917.

An appeal is made for funds to build a chapel in connection with the Treloar Cripples' Hospital at Alton, Hants. The plan and design, now on view at the Royal Academy, have been prepared by Mr. Leonard Stokes, F.R.I.B.A., of Westminster, and the estimated cost is £3,275. The church will be Late Gothic in style, and will consist of nave and chapel, with extreme dimensions internally of 83 ft. by 21 ft. 6 in. From the west door a corridor will run to one of the main corridors of the hospital.



Plans for the new infectious diseases hospital at Clendon have been prepared by the borough engineer of South Shields.

A picture house, accommodating 834 people, is about to be built near the Cross, in Brandon Street, Motherwell, from plans by Mr. Hugh N. Bryden.

A municipal hospital is about to be built at Washington, D.C. The first section is estimated to cost \$150,000. The plans have been prepared by Mr. Snowden Ashford, the municipal architect to the city.

The Dewsbury Textile Workers' Union has resolved to purchase a four-story building in Union Street in that town, and will remodel the premises as union offices and clubrooms, at an estimated outlay of about £2,000.

The partnership hitherto subsisting between S. H. Ward and A. Kent, auctioneers, valuers, land and estate agents, architects, surveyors, fire assessors, and insurance brokers, at Broadway Estate offices, Bexley Heath, under the style of Box and Company, has been dissolved.

Owing to the difficulty of obtaining men and carts, delay has ensued in the collection of house refuse at Halifax. In the hope of overcoming the difficulty, the Health Committee has introduced motor traction, a Yorkshire commercial steam wagon being brought into service.

At the last meeting of the Brigg Rural District Council an application from the Contract Works Supply Company for permission to run a line across the road in Hibaldstow was referred to the Highways Committee. It was stated that some £10,000 will be spent over some new works contemplated by the company at their works near Kirtton tunnel.

At Friday's meeting of the Metropolitan Water Board, the water examination committee reported that experiments conducted in the Board's laboratory in the economical purifying of water had been so satisfactory that it had been decided to test the method under actual working conditions for a month at a cost of £360.

The contract for laying the new water main from Crang-yr-Aber, on the Margam Hills, to Smoky Cot, Cornelly, a distance of six miles, undertaken for the Porthcawl Urban District Council, has just been completed. The cost of the work has been nearly £7,000. Mr. B. Taylor was the engineer, and Mr. J. E. Pullen the contractor.

Sir W. Cobbett presided on Wednesday at the opening of the new offices of the Independent Order of Oddfellows, Grosvenor Street, Manchester. The building has cost about £15,000, and has been built from plans by Mr. John B. Thornley, of Blackpool and Market Street, Darwen, whose design was illustrated in our issue of June 19, 1914.

The death has occurred, at Fareham, of Mr. James Pain, member of the firm of Messrs. Hall, Pain, and Goldsmith, auctioneers and estate agents. Mr. Pain, who was elected a Fellow of the Auctioneers' and Estate Agents' Institute in 1903, took an active part in the formation of the Fareham and District Small Holdings and Allotment Association.

A students' building for Barnard College, estimated to cost 450,000 dollars, will be erected on the east side of Claremont Avenue, north of 116th Street, just behind Brooks Hall, New York City. Plans for the proposed building were filed by Messrs. Buchanan and Fox, architects, Forty-second Street and Madison Avenue, and Arnold W. Brunner, Park Avenue, New York.

Mr. J. Gordon Carrie, assistant surveyor on the staff of the borough surveyor of Stockport, is leaving England to take up an appointment as assistant engineer on the New South Wales Government's works, Sydney. The commencing salary is £400 per annum. Mr. Carrie was formerly on the staff of the borough engineer of Bolton. Mr. E. L. Morgan.

At the annual meeting of the Hay Urban District Council, Councillor David Morgan was unanimously elected chairman. In returning thanks, Councillor Morgan stated that he had served as surveyor to the town of Hay for over thirty years, being first elected by the old local board, and when the town was made into an urban district he was again elected as surveyor.

Mr. Wm. Matthews Haywood, of Westfield House, Holmer, Hereford, whose sudden death is announced at the age of fifty-seven years, had been a Fellow of the Surveyors' Institution since 1885, and was a member of the firm of Haywood and Son, agents to the Herefordshire estates of Guy's Hospital, of Major Parry's Hereford Park, Sir Geoffrey Cornewall's estate, and others.

Mr. Francis E. James has been elected a member of the Royal Society of Painters in Water Colours.

The available cash balance of the Amalgamated Society of Carpenters and Joiners is officially returned at £181,716.

Mr. H. F. Wilson has been appointed by the Ticehurst Rural District Council to the position of highway surveyor.

Mr. J. Maxwell, surveyor to the Larne Urban District Council, has had his salary increased by £26 per annum.

Mr. E. G. Stevens, of Plymouth, has been appointed highway surveyor for No. 1 District of the Kingsbridge Rural District Council.

The Carnarvon Corporation have secured sanction to the borrowing of £2,680 for the extension of plant at the electricity works.

A widening is to be made by the Kensington Royal Borough Council at the corner of Brompton Road and Cromwell Road at a cost of about £1,000.

The city surveyor of Winchester has been instructed by the main roads and improvement committee of the corporation to prepare a scheme for improving Durngate Bridge.

The Wick Harbour Trust have been informed that the new harbour improvements will start about the middle of June, the advance of £30,000 having been passed by the Treasury.

The death is announced of Mr. Septimus Wilson, who recently resigned the position of surveyor to the Royston Urban District Council, in whose service he had been for thirty-six years.

A new council school at Fochriw, built at a cost of £4,202, has been formally opened. Mr. D. Pugh-Jones, the county architect, prepared the plans, and Messrs. Hamilton and Millard, of Caerphilly, were the contractors.

Mr. Joshua T. Jackson, for thirty-eight years Art Master at the Grammar School, Manchester, died on the 8th inst. at his residence in Mulgrave Terrace, Worsley Road, Swinton, Lancs., aged fifty-eight years.

Plans for the erection of twenty-four houses for the working classes have been adopted by the Knottingley Urban District Council, and an application is to be made to the Local Government Board for sanction to a loan of £5,083 to carry out the work.

Messrs. McKim, Mead, and White, architects, 101, Park Avenue, New York, have filed plans for a six- and ten-story hospital building to be erected between Twenty-sixth and Twenty-ninth Streets on First Avenue and East River, for the Bellevue and Allied Hospitals of the City of New York. The estimated cost is \$800,000.

Mr. George Wickham Dobson, who recently died at his residence in Maldon Road, Colchester, at the age of fifty-six, was the sole proprietor of the firm of George Dobson and Son, builders, Colchester, founded by his father more than sixty years ago. The firm was widely known for the amount of the contracts for church building and restoration entrusted to it.

Mr. W. S. Bowman, of Denver, has been selected to prepare the plans for the Yavapai County Courthouse, at Prescott, Arizona, having been chosen through a competition in which twenty-four architects participated. The first premium of \$1,000 was awarded to Mr. Norman R. Coulter, of San Francisco, and the second prize of \$500 to Mr. F. J. De Longchamps, of Reno, Nevada. The building will cost \$250,000.

"English Moral Monuments and Tombstones of the 17th and 18th Centuries" is the title of a book which Messrs. Batsford will publish this month. The volume will contain numerous reproductions of photographs to a large scale, specially taken under the direction of Mr. Herbert Batsford, in various parts of the country, with the intention that they should be representative of the best work of the period and form a source of inspiration for the present time. Mr. Walter H. Gaffrey, architect, F.S.A., has written an introduction and notes to the photographs.

The deadlock which has occurred between the landward heritors of the parish of Linlithgow and the town council of Linlithgow as to the manner of treating the mullions and tracery in the window in St. Michael's Church, in which a stained glass window is to be placed to the memory of the late Rev. Dr. Ferguson, was the subject of discussion at a meeting of the landward heritors of the parish. It was decided to ask the town council if they would be willing to abide by the opinion of Mr. W. T. Oldrieve, F.R.I.B.A., Edinburgh, and to adjourn the meeting until after they heard from the town council.

## TO ARMS!

FIRST LONDON ENGINEER VOLUNTEERS.  
OFFICERS FOR THE WEEK BY LIEUT. COLONEL  
C. B. CLAY, A.D.C., COMMANDING.

OFFICER FOR THE WEEK. Platoon Commander  
C. H. C. Bond.

MEET FOR DUTY.—Platoon Commander J. O. Chapple.

THURSDAY, MAY 18.—Platoon Drill, No. 3 Platoon, No. 2 Company. Shooting for Sections and No. 3 Company, Miniature Range. Reports, 5.45 to 7.15. Instructional Class, 5.45.

FRIDAY, MAY 19.—Technical for Sections 3 and 4, No. 3 Company, 46, Regency Street, S.W. Squad and Platoon Drill, Sections 1 and 2, No. 3 Company.

SAVEDAY, MAY 20. Company Commander Fleming's Instructional Class, 2.30.

SUNDAY, MAY 21. Entrenching at Otford, Parade Victoria (S.E.) and C.R. Booking Office, 8.30 a.m. Uniforms, haversacks, and water bottles. Mid-day rations to be carried. Railway vouchers will be provided.

MUSKETRY. For Nos. 1 and 2 Companies, see Notice and Tables A and B at Headquarters.

NOTE. Unless otherwise indicated, all drills, etc., will take place at Chester House.

On May 27 there will be a Parade at Golden's Green Station for a Route March, accompanied by a Drum and Bugle Band. The Commandant hopes every member will attend.

By order,  
MACLEOD YEARSLEY, Adjutant.

May 15, 1916.

## MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY (To-day). Royal Society of Arts. "Hindu Hand-painted Calendars of the Seventeenth and Eighteenth Centuries, and their Influence on the Tinctorial Arts of Europe," by George P. Baker. 4.30 p.m.

WEDNESDAY (May 24).—Royal Society of Arts. "Zinc: Its Production and Industrial Applications," by J. Collett Moulden. 4.30 p.m.

THURSDAY (May 25).—Institution of Municipal Engineers. Meeting of the Eastern and North-Eastern Districts at Norwich. "House Drainage," by G. Belson Chilvers. 12.15 noon.

FRIDAY (May 26).—Town Planning Institution. Second annual meeting. Discussion on "The Town Planning Proposals of the Urban Land Report," 92, Victoria Street, S.W. 5.45 p.m.

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Edinborough House, 1, Abchurch Lane, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

"Drawings of selected competition designs, important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc., we have usually far more than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

Telephone: Gerrard 1291.

Telegrams: "Timeserver, Estrand, London."

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F. Yes.

N. D. S. Thanks, no.

J. D. T. Please send, and we will see.

H. S. Foster, E. W. Wrightwick, Randall Jackson, A. E. Mallinson, J. Sharpe, and others. Many thanks for Masonic votes.

URGENT. PLEASE NOTE. To prevent disappointment, owing to restricted and late postal deliveries, it is not safe to wait till Friday morning to send us advertisements for the current week's issue. Many reach us after 3 p.m., at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order THE BUILDING NEWS regularly of their newsagent or bookstall. With the present shortage of paper and probable still further rise in its price, it is futile to expect a newsagent to saddle himself or us with surplus unsold copies to oblige chance customers, on which, moreover, he or we have to pay heavy and increasing carriage charges.



# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

Effingham House,

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## OUR ILLUSTRATIONS.

Holy Trinity Church, Exmouth, Devon. Interior, looking S.W. Mr. Geo. H. Fellowes Pryme, F.R.I.B.A., Architect.

Vicarage and St. Peter's Church, S. 100, Road, Acton Green, W. Mr. W. J. A. P. F.R.I.B.A., Architect.

House and Garage recently erected at Loughfool, Elevations and plans Mr. Arthur Keen, F.R.I.B.A., Architect.

The New Technical Institute, Cardiff. Plan and Sections, Messrs. Ivor P. Jones, A.R.I.B.A., and Percy B. Thomas, Architects.

The Doune, Bonhill. Elevational drawing by Mr. Allick G. Horsnell, Soane Medalist and Late Prize-man.

Carlisle New Head Post Office. View and plan. Mr. Charles P. Wilkinson, H.M. Office of Works, Architect.

### Currente Calamo.

At last! Mr. C. H. Kenderdine, secretary of the Land Union, calls attention to "an important concession" by the Chancellor of the Exchequer in cases where increment value duty is being claimed under the Lumsden judgment. It is set out in a letter from Mr. McKenna:—

I have again given the most careful consideration to the question of the collection of duty in cases affected by the Lumsden judgment, and I think that the best course will be to leave matters as they are at the present time until Parliament has decided how far the promised legislation is to be made retrospective. The Board of Inland Revenue will, therefore, allow payment of increment value duty to remain in suspense in cases which would be covered by the legislation promised by the Prime Minister, whether such duty became payable on an occasion arising before or after May 7, 1915.

Why could not Mr. Lloyd George or Mr. Asquith have done this eighteen months ago, and so, at any rate, have mitigated the mischief which the foolish finance of the former has wrought so disastrously?

Building contractors who take on large jobs may become liable in damages for accidents happening to persons who are not parties to the contract, and are, in fact, outsiders. The question of such liability is often a fine point of law, dependent upon evidence as to cause and effect. The recent case of "Elliott v. C. P. Roberts and Co., Ltd.," in the Court of Appeal shows how fine and involved this vital legal point may often be. The defendants had contracted with the L.C.C. to rebuild a school; they were to provide plant and scaffolding, which could be used by other tradesmen working independently on the job, the defendants having control of the premises and plant. The plaintiff was an engineer fixing a heating apparatus under a sub-contract, who sued for damages for injuries on the ground of defendants' negligence in not having fixed the planks, which had no handrail, over which he had to walk, and so fell and was injured. The jury gave him a verdict, but Mr. Justice Lush held that, as he was only a licensee, the defendants were under no obligation to provide him with a safe gangway, and gave judgment for the defendants. The Court of Appeal has now held that the plaintiff was not merely a "licensee,"

but was an "invitee," which is a very different thing, and gave him larger rights and so wider remedies where an accident arose from the defendants' negligence. As the loose planks were obviously dangerous, that fact alone did not give plaintiff a claim. But the Court ruled that the gangway required inspection, and the want of this might be negligence making the defendants liable to the plaintiff as an "invitee," or person impliedly invited to come on the place. Thus the defendants lost their judgment, and the whole case went back to be tried over again.

In our brief mention on p. 467 of our issue of May 10 of the find of treasure trove in the City in Friday Street, Cheap-side, we said: "It was not until 1914 that the existence of the find came to the knowledge of the City Coroner, Dr. Waldo, to whom such discoveries have to be reported on pain of fine or imprisonment." We find on further reliable information that it is true that such discoveries ought to be reported to the coroner, but, unfortunately, there is no punishment at all attaching to the default or neglect of those finding treasure or having knowledge that such has been found in so reporting the find to the coroner of the district. Fine or imprisonment is only inflicted in cases where treasure trove is intentionally concealed from the knowledge of the King. We believe the treasure trove in question first came to Dr. Waldo's knowledge in 1914, towards the end of which year an account of it was published in a bulletin issued by an archaeological society. We believe it was reported to Dr. Waldo neither by the finders nor Mr. Harcourt, nor by the Treasury, all of whom ought to have reported it to the coroner. Mr. Harcourt paid the finders £100 for the treasure, and communicated the find to the Treasury. The least value of the treasure, we understand, is £10,000. The practice of the Treasury since the early eighties has been to give the honest finder the antiquarian value, less 20 per cent., so that it would appear in this instance the finders should have received £8,000 instead of £100. How its present disposal at the Guildhall and the British and London Museums can be described as the joint gift of the City Corporation and Mr.

Harcourt we do not understand, as all the treasure belongs to the Corporation, and none to Mr. Harcourt, who failed to report the find to the coroner.

We find on reference to Dr. Waldo's Annual Return to the City Corporation for 1914, dated February 20, 1915, that he did actually report the find, and that at that date, so far as could be gathered, "the trove had been secured by a secret arrangement with a certain person or persons." Dr. Waldo added that it was for the Corporation to determine whether any steps should be taken to defend the jurisdiction of its Coroner's Court. The right of such jurisdiction under such circumstances was originally given to the Coroner by Edward the First, who enacted in 1276 "that a coroner ought to inquire of treasure that is found, who were the finders, and likewise who is suspected of it." This duty was reimposed in Section 36 of the Coroners Act of 1887, and is still in force. It certainly seems only proper that the coroner, the representative of the people as well as of the King, should deal with such matters in open court, rather than that such property should be appropriated by some officer or agent of the Treasury—not unseldom a policeman, acting only in the King's interest. In the case of the Attorney-General v. Moore, in 1895, Mr. Justice Day, in his charge to the coroner's jury supporting the coroner, is reported to have given expression to the following significant dictum:—"In cases of grant the Crown cannot seize chattels because they are treasure trove, and the coroner is bound to inquire into the matter and deal with it." This, of course, we cannot but think, ought to have been facilitated in the instance under notice.

We may be quite wrong, but we have a feeling that all the facts of the case have not yet been made clear. Anyhow, we are of opinion that it is time the common-law duty to disclose the finding of treasure trove was made a statutory obligation. In India it is obligatory on the finder of treasure to disclose the find to a public official appointed for the purpose. The Indian Treasure Trove Act of 1878 enacts that the finder must, under penalty, give notice in writing to the

Government Collector when the treasure exceeds ten rupees in value; of the place where it was found; and of the date of finding. Such an addition to the law here would be the means of saving for the public use much valuable treasure of antiquarian and historical value; and at the same time would do away with the expensive luxury of appeal to the higher courts of law.

Some reasonable protests were made in the House of Lords against the passage of the "Summer Time" Act. Lord Salisbury said, and quite rightly, that the procedure had made legislation somewhat of a farce, and Lord Parmoor entered a protest against the provision enabling the Act to be brought again into force by Order in Council after the current year. He objected to legislation by proclamation as unconstitutional. Lord Balfour said it was the most ridiculous and absurd Bill that had ever been presented to the House. He did not propose to give it strenuous opposition, as it was but a temporary measure for the duration of the war; but if any attempt were made after the war to make it a permanent institution, it would have to receive the most critical attention. The Bill would place a serious burden on the least articulate, in a Parliamentary sense, of the population the women of the working classes. They would have their period of rest curtailed, because by the lengthening of the hours of daylight the husbands and children would sit up later and require later meals. The Bill would also impose extra hours and cost on Scottish farmers in harvest time, as, owing to the prevalence of mist, work in the cornfields did not commence until a late hour. There would be other difficulties of an unexpected kind. He asked their Lordships to carry their minds to the night in October when the clock was to be set back. At one o'clock the clock would be put back to midnight. Supposing some unfortunate lady was confined with twins, and one child was born ten minutes before one o'clock; if the clock was put back the registration of the time of birth of the two children would be reversed. The second child would be born fifty minutes before the other. Such an alteration might conceivably affect property and titles in that House. That was the kind of possibility existing under this most ill-considered and injudicious measure.

People are already wondering whether they ought to go to bed earlier to save gas, or sit up and burn it in order to help the Government. Mr. Fredk. J. Brodie, writing to the *Times* from Wandsworth Common, says his gas company has sent him a note, which runs thus:

It is not generally known and appreciated by the public that the country is dependent for the high explosives required in ever-increasing quantities by the Army and Navy of the Allies upon the supply of nitrol and nitrocellulose, and that the main sources of supply are the two swamps. The quantity, therefore, of nitrol and nitrocellulose that can be supplied to the Government depends strictly upon the quantity of gas supplied to the public, and the continued and increased use of gas is there-

fore at the present time of vital importance to the nation, and has a direct bearing upon the speedy armament and early victory of our forces.

What are we to do? Says Mr. Brodie: "The only solution of the difficulty which presents itself to my mind is that the members of my household be instructed to go to bed early, but on no account to turn out the gas!"

Evidence is accumulating that reinforced concrete in road foundations, if laid on a proper system, will give the strength, endurance, and resiliency that are the urgent needs of modern traffic and the paramount requirements of our times. It is really a continuation and development of the traditions and practice of the great road-makers of their day and generation, Macadam and Telford, whose first care was to strengthen their road foundations and to pack the surfaces with a care and efficiency which defied the wear of horse-drawn traffic and the earlier forms of light motor traffic. To-day, especially on our country roads, their methods no longer suffice, and concrete in its newest and strongest form, reinforced with a wire fabric, seems the one expedient sufficient for present requirements and likely to meet future demands. Concrete in thick layers, 9 ins. and upwards, is dead and inert. Concrete 6 ins. thick is live and resilient, and meets all needs. Mr. W. Matthew Jones, the city surveyor of Chester, has had experience which is well worth the attention of every road authority in the kingdom. He had the same results as are to be witnessed wherever wood blocks are used on a concrete foundation and have to be renewed continuously in patches, and he determined to lay a road-way in the centre of Chester, known as White Friars, with 5 ins. of granite concrete reinforced with B.R.C. Fabric. After two years' wear the road is the best in Chester to-day. Mr. J. P. Sheldon, M.I.C.E., has also used the Fabric in the Romford Road at Chadwell Heath.

There is another advantage in using the B.R.C. Fabric which should commend itself to the road authorities of our many seaside towns, and that is its proved capacity for resisting the battering of heavy seas. At Falmouth, to protect a sewer pipe at the bottom of the cliffs, unreinforced concrete had been used, and continually gave trouble through being broken by the waves. Four years since it was determined to use concrete reinforced with the B.R.C. Fabric No. 8, and since then not an ounce of concrete has been damaged, although a heavy masonry wall, built close to under similar conditions, and constructed of blocks weighing four tons or more, has been badly damaged. There are other advantages, in regard to cost, etc., which well deserve the consideration of all interested in road-making, and some interesting photographs and particulars will be found in a booklet issued by the British Reinforced Concrete Co., Ltd., of 20, Victoria Street, Westminster, and 1, Dickinson Street, Manchester, which may be had

on application, or from their offices in Birmingham, Liverpool, Newcastle-on-Tyne, Sheffield, Glasgow, and Melbourne, Australia, and which is well worth perusal.

### THE CRYPT OF GLASGOW CATHEDRAL.\*

A distinctive and beautiful feature of Glasgow Cathedral is the crypt under the choir, locally known as the Double Choir or Laigh Kirk, which although very poorly lighted, contains excellent vaulting and other details of the last quarter of the thirteenth century. Mr. P. Macgregor Chalmers, in his recent monograph, claims for it the merit of being "the greatest art treasure of the mediæval period in Scotland," but whether that can be justified or not this sub-structure has given rise to much controversy as to the years in which it was built. More than thirty years ago Mr. T. Lennox Watson, the author of the informative new volume before us, noticed that the vaulting of this crypt was of various dates, although up till that time it had been assumed that the whole vaulting here, with the exception of a small portion in the south-western angle, was of one period and constituted one design. Mr. Watson investigated the work closely, and discovered that the whole design and the details of the rich vaulting over the central area of the crypt was about twenty years later than the vaulting of the north and south aisles, while that of the eastern aisle and chapels was later than either. Altogether, in the crypt and choir alone, no fewer than five distinct periods may be traced, each separated from the others by an appreciable interval of time. Each succeeding stage of the vault is marked by features characteristic of its own period, and is distinguished from the preceding stage by the introduction of a new and later type of moulding in the vaulting ribs. The necessary inference is that the design of the central vault is not the original one, but that it superseded another and radically different plan of the period of the aisles. In designing a vaulted building the general plan is the first thing to be determined, as it controls the conception of the whole structure, including its minor parts; it follows that when the main walls and piers of the crypt were set up, there must have been a plan of the whole scheme of vaulting. The middle compartment, is however, wholly the production of a later period, and so was ingeniously substituted for the initial one, the springers being replaced by new ones, or, if retained, considerably altered to adapt them to the fresh design. The author endeavoured to complete the restoration of the original design of the middle vaulting, and fifteen years ago published the

\*"The Double Choir of Glasgow Cathedral." By Thomas Lennox Watson, F.R.I.B.A. Small quarto, cloth, 122 pp., 35 illustrations. (Glasgow: James Hedderwick and Sons, Ltd. 5s. net.)

(The following illustrations of Glasgow Cathedral have appeared during recent years in the *Building News*: General plan (by P. Macgregor Chalmers), April 10, 1914; view from south-south-east (drawing by James Glen), April 25, 1884; from south-east (David Small), May 13, 1893; from south-west, April 10, 1914; its position in relation to new Infirmary (David Murray), June 30, 1905; from N.E. view from Necropolis (J. Gaff Gillespie), August 18, 1911; exterior of Chapter House (D. Small), May 27, 1898; Archbishop Blackader's road loft (Herbert Raitton), May 27, 1898; choir interior, to east, April 10, 1914; across the choir (D. Small), May 27, 1898; south choir aisle and rib-vaulting (T. Lennox Watson), July 26, 1901; choir interior and its new roof, March 24, 1911; bosses in new roof over choir and transepts, March 7, 1913; measured drawings and plan of crypt (R.I.B.A. prize set, George S. Hill), June 30, 1893; plan of crypt (P. Chalmers Macgregor), April 10, 1914; rib-vaulting of double choir, to first, second, fourth and fifth periods of work (T. Lennox Watson), July 26, 1901; Blackader's or south crypt or Fergus aisle, looking towards entrance (John H. James), June 30, 1893; in Fergus aisle of crypt, looking north, April 10, 1914.

result of his efforts to dissect what had been referred to by Sir Gilbert Scott as "a pretty and intricate puzzle in a guinea quarto volume." The original publishers, Messrs. James Hedderwick and Sons, of Glasgow, have now re-issued the work in a cheaper but still very attractive form, and the detailed narrative has been condensed and to some extent re-written. The volume now before us is handy in size, stoutly bound and well printed, and is illustrated by numerous half-tones from photographs and by large scale plans, sections, and sheets of mouldings in five colours, effectively and clearly differentiating the five periods at which the works were carried out.

The subject is of wider interest than the development of architectural work in Glasgow at the end of the thirteenth century. As a double and two-storied vaulted church of the thirteenth century, with chantry and eastern aisles, the choir of Glasgow Cathedral is in some respects unique in this country, and has no direct parallel anywhere, the eastern part of Old St. Paul's, with its Church of St. Faith beneath, being the nearest analogue, although a few years later in date than the edifice under notice. The design at Glasgow is such as to involve constructive difficulties, in resolving which the builders were without precedent, and the narrative of the choir vaulting shows by what means those obstacles have been overcome. Its examination reveals to us, in the continuous modification of detail in succeeding stages of the work, something of the process followed by the mediaeval builder, while the complete change of design in the middle compartment, following upon an interval of only twenty years, illustrates once more the rapid development of the work and shows a sustained effort on the part of the designer to improve and perfect his conception.

The author's investigations have led to some revision of dates in other portions of the cathedral. Part of the lower walls of the nave and of the rudimentary transepts, as well as one section of the underbuilding of the choir, are attributed by Mr. Watson to the thirteenth, instead of, as hitherto, to the latter part of the twelfth century, and ascribed to the Bishopric of Walter, in place of that of Jocelin. An explanation is offered of the fact that "one compartment of the lower church"—*i.e.*, one bay of the crypt—should have been completed before the rest of the choir building was begun. The author believes, too, that he has satisfactorily accounted for the presence of a fragment of a still older structure incorporated with this part of the work.

Mr. Watson considers that Glasgow Cathedral is not even appreciably later in style than many of the English cathedrals, judging by the recorded periods of activity in construction. Built by Bishop Achais 1123-36, and destroyed by fire in 1176, it was three times replanned during the days of Bishops Jocelin (1175-99), Walter (1208-32), and Bondington (1233-59) on a scale of ever-increasing size and elaboration, and while the work of Jocelin has almost disappeared, that of Walter and Bondington remains. For many years the whole main structure of the choir was erroneously ascribed to Bishop Jocelin, or even to earlier prelates; but the author can find very few fragments that can be assigned to an earlier period than that of Walter, and to this latter bishop he gives the credit of having built the south-western portion of the crypt and the lower walls of the rudimentary transepts and of

the nave. At his accession in 1233 Bondington concentrated his efforts on the eastern half of the building, leaving the nave walls in the unfinished condition in which he found them, and within the five-and-twenty years of his episcopate he was able to carry the choir nearly to completion. Mr. Watson believes that the second, third, and perhaps the fourth stages of the vaulting fall within the period during which Bondington held the see.

One of the problems of the structure is the early south-west compartment of the crypt. This section of the edifice, situate at the west end of the south aisle, occupied

for the most part the old material. Jocelin's pillar has long been looked upon as the sphinx's riddle of the cathedral; it is certainly peculiar in design, and occupies a strange situation. Like other shafts in the crypt and in the nave walls, its longitudinal section is composed of two segments of a circle, forming an arch in front, but it is of different size and proportion to the other pillars in the cathedral. It has, it will be seen, an early base, with square plinth and a disproportionately heavy capital in rudely carved foliage of very early thirteenth-century character. Its position is still more remarkable—a portion of an east wall is encountered



FIG. 1.—JOCELIN'S PILLAR, WALTER'S CHAPEL, SOUTH AISLE OF GLASGOW CATHEDRAL CRYPT.

three bays of the crypt, corresponding to one bay and a half of the choir aisle above. This small chamber is of particular interest, not only as the oldest part of the building, but from the fact that within its limits four periods of architecture meet: the periods of Jocelin, Walter, Bondington (1240), and finally that of the reconstruction of the vault about 1250. One of the shafts (shown on the photograph reproduced herewith as Fig. 1) is of Jocelin's time, two other shafts and the south wall are of Walter's building, while three pillars are Bondington's. The vaulting is Walter's, but it has been reconstructed at a later date, the rebuilders following the original design and employ-

where no east wall was to be expected, and a shaft is found in an impossible situation, on the east wall, but close to the angle which it forms with the south wall of the compartment. Previous writers have ascribed this unique shaft to a great variety of dates, but are all agreed that it occupies its original site, and they have expended much ingenuity in trying to explain the pillar. Mr. Watson suggests that this inconsistent pillar is not *in situ*, and holds that when Walter, in 1220, demolished and reconstructed what had been built of Jocelin's cathedral, a temporary chapel was constructed in the south-west compartment of the new crypt



as a resting-place for the bones of St. Kentigern; an altar was provided at the east end, beneath which the saint's relics were re-interred. Over the altar an arch was thrown, supported on one side by this column removed from Jocelin's building. On the completion of the vaulting of the middle compartment, in 1260, the saint's remains were transferred to their permanent resting-place in the middle of the crypt, the wall at the back of the arched recess was taken down, and the temporary altar cut through. A vaulting rib was then carried from the capital of the one pillar which was left to the crown of the reconstructed vault.

In another chapter Mr. Watson deals with the second period of the vaulting, the north and south aisles of the crypt, executed after 1240, immediately after the completion by Walter of the south-west compartment. Some ten years later Bondington carried up the walls and pillars of the choir itself, constructed the upper vaulting (which is confined to the

work before us. About 1270 the fifth and last period of the vaulting was carried out, that over the transeptal stairs, the eastern aisle and chapels of the crypt, and in this work the tierceron is introduced.

The author has worked out his hypothesis of the successive stages of construction with great ingenuity and care, and with a great wealth of detailed argument. In the main his conclusions appear to rest upon sound bases, and he has given us a valuable work on the general development of vaulting during the central fifty years of the thirteenth century.

#### BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

The jubilee of this deserving institution was celebrated on Tuesday evening in last week by the holding of a dinner, the thirty-eighth annual festival of the kind, at the King's Hall, Holborn Restaurant. Alike as regards the numbers present and the amount collected, the dinner constituted a record in the history of

port to their funds. Not only was there unusual distress among builders' clerks, but owing to the depression in the building trades their receipts had so seriously fallen off that the institution's list of pensioners, which usually numbered thirty-three, had perforce been reduced to twenty-three. Many deserving and necessitous cases were now awaiting consideration by the committee, and he earnestly pleaded with those present to contribute to this fund as generously as possible. He had already received from friends some handsome donations, and he trusted these would be largely supplemented from a wide field of supporters, not only at that dinner, but subsequently when their needs were made known.

The toast of "The Architects and Surveyors" was proposed by Mr. W. J. Renshaw, who remarked that the presence that evening of so many members of the professions betokened their practical and serviceable sympathy with the institution and with the class of builders' clerks, to whom they owed much. No body of men had been so hardly hit by the war as had been architects, many of whom had been obliged to dismiss their assistants, and even close their offices. Builders also

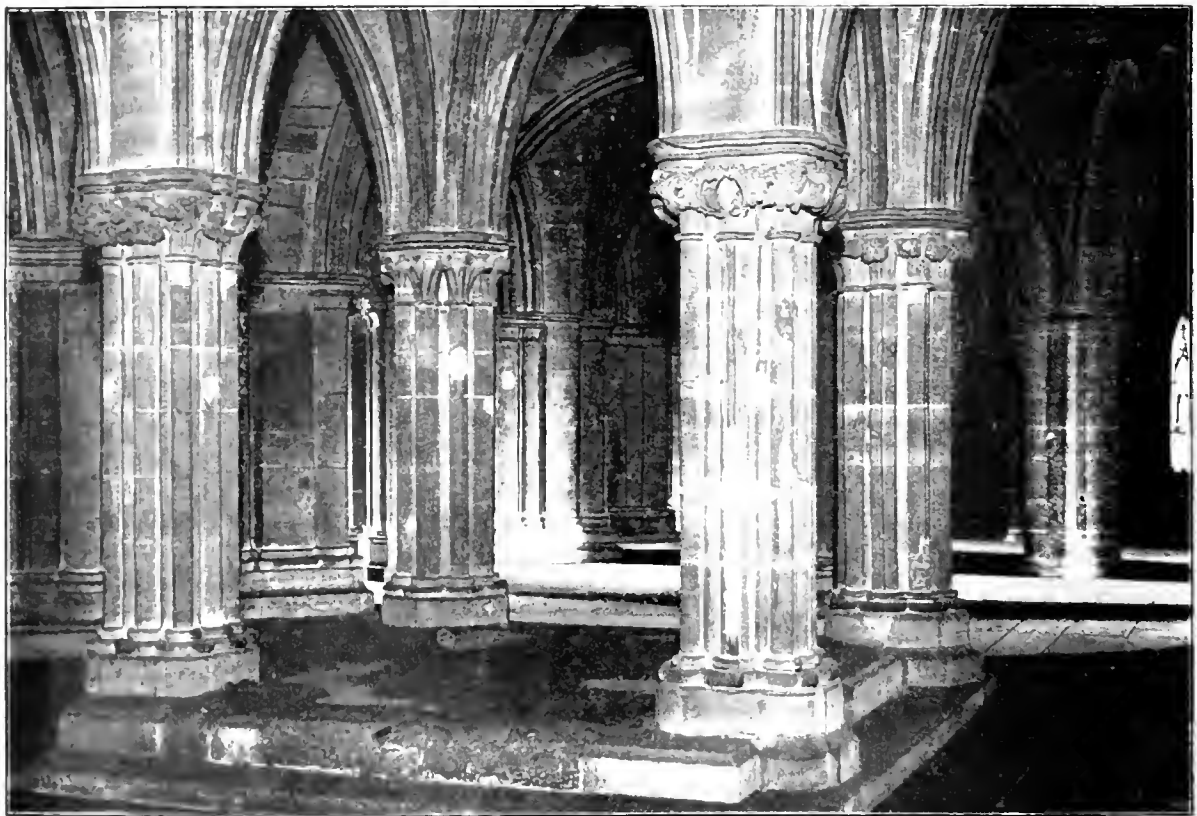


FIG. 2 BASE FOR ST. KENTIGERN'S SHRINE, MIDDLE COMPARTMENT, GLASGOW CATHEDRAL CRYPT.

aisles and retrochoir), and completed the clerestory walls. Another ten years elapsed, and the fourth period of the vaulting was undertaken, in 1260, some two years after the death of Bondington, that over the middle compartment of the crypt, a work which the author regards as the most interesting feature of the cathedral. It consists of an adaptation of the ordinary methods of dividing a square into four smaller squares of groming, to a space whose sides are divided into three instead of two, the result being a starlike arrangement of an exceedingly pressing though intricate character. This feature is well exhibited, as Sir Gilbert Scott pointed out long ago, a close resemblance to the treatment of the vaulting of the chapels at the west end of Lincoln Cathedral nave. In this central compartment is the slightly raised dais, marked by four groups of slender columns with richly carved capitals, which once supported the pinnated Shrine of St. Kentigern. The dais is shown in Fig. 2, which forms the frontispiece of

the institution, and the speaking and musical arrangements were on a high level. The chair was occupied by the President, Mr. Frederick Shingleton, M.V.O., of Messrs. Leslie and Co., Kensington, and the company present numbered over 250, including Sir Herbert Bartlett, Bart., Messrs. A. Strachan Bennison, B. Carter, R. B. Chessum, S. B. Depree, W. Downs, C. Williams Dunford, R. C. Foster, G. H. Hadland, Fred Higgs, H. T. Holloway, F. G. Minter, O. Newling, H. Northcroft, G. H. Parker, W. J. Renshaw, Alex. Ritchie, E. L. Strange, Godfrey Sykes, etc.

The loyal toasts having been given by the President, Sir Herbert Bartlett, in a spirited address, full of hopeful augury as to the progress of the war, proposed "H.M.'s Forces and Allies," a sentiment received upstanding and with cheers.

The President, in submitting the toast of the evening, "Success to the Builders' Clerks' Benevolent Institution," observed that, while many charitable bodies had decided at this crisis to suspend the holding of annual dinners, their committee, after some discussion, resolved to continue them, chiefly with the view of making known the sad and urgent need that existed for additional sup-

had suffered, and would continue to suffer much, and needed all the sympathetic consideration that could be shown by architects, surveyors, and building owners. Mr. Henry Northcroft, F.S.I., in responding, said the unexpected smoothness with which the Summer-time Bill had passed all stages in the House of Commons emboldened him to advocate a much greater measure of reform, which, although it would involve great trouble and complication at first, would be of extreme benefit in all commercial transactions in future years with our allies. He referred to the introduction of a metric system of weights and measures. The Senate of the United States had under consideration a Bill for the adoption of the metric system compulsorily in 1920, and before that period voluntarily, and there was great prospect that it would be adopted. The toast of "The Builders and Builders' Merchants" was proposed by Mr. Godfrey Sykes, of the firm of hon. solicitors to the institution, and was acknowledged by Mr. E. L. Strange and Mr. Alexander Ritchie, J.P. Mr. John Austin, secretary, announced, amid cheers, that the donations and subscriptions promised that evening amounted to £535. The concluding toast was "The President,"



proposed by Mr. Frederick Higgs, the retiring president, and received with musical honours. In response, the Chairman gratefully acknowledged the generous response made to his appeal on behalf of the institution.

### VERTICAL AND HORIZONTAL REINFORCING OF CONCRETE COLUMNS.

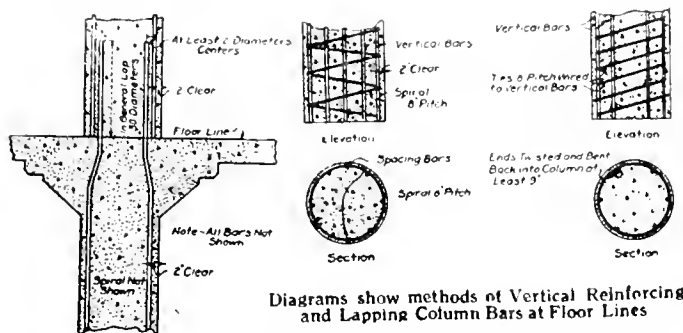
Much has been written on the strength of reinforced concrete members, as governed by the systematic placing of the reinforcing bars in such positions as to give the maximum strength to the members. Mr. A. M. Wolf, C.E., writing in the *Cement World*, gives a few notes on placing reinforcing in concrete columns, from a practical point of view.

A plain concrete column should not be allowed in any first-class building; this does not mean that it should not be used in pieces, but for slender columns, those less than 18 ins. in least dimension, never. The chances taken with such construction are out of all proportions to the additional cost of a few reinforcing bars, which will at least give the column a factor of safety of more than one. Experience on actual construction shows that the same care is not exercised in pouring plain concrete as is in the placing of reinforced concrete; and for this reason, if no other, some reinforcement should be used in a bearing member. Even if a column with a ratio of length to least dimension of six with a unit stress of only 200 pounds per square inch is used, it is in the writer's opinion, money well spent to provide longitudinal reinforcement stayed at

hoop tie method does not. The fabrication cost for such spirals is less than that for hoops at about the same spacing, and the cost of placing the reinforcement is also much less than where hoops are used. Since economy can be effected, and the column materially strengthened by the use of spirals at wide pitch in place of hoops, it seems rather unprogressive to continue the use of the latter, except, of course, in cases where the vertical bars are placed in the form of a square or rectangle instead of in a circle.

Recent experiences in severe fires have shown conclusively that a covering of 2 ins. outside of reinforcing bars cannot be relied upon to stay the latter under such conditions, and engineers are now practically agreed that a rodged column without ties is not good practice. A study of the various reports on the Edison fire will reveal the truth of, and the basis for, this statement.

A few words regarding the splicing of column bars at floor levels will probably not be amiss. As for wiring or clamping bars together, to transfer the stress from one to the other in lieu of the longer lap of bars wherein the transference of load is obtained by bond between concrete and steel, it has been shown by tests that such methods of splicing will not develop the proper strength. With both wired and clamped splices where the length of bar lap is cut down to make allowance for the "supposed" efficiency of the splices, it has been found that they cannot be made tight enough to act before considerable slip of bars, sufficient to rupture the concrete, has taken place when stress is applied. To the present time no



Diagrams show methods of Vertical Reinforcing and Lapping Column Bars at Floor Lines

### VERTICAL AND HORIZONTAL REINFORCEMENT.

intervals of not greater than 6 to 12 ins., depending on the size of column or size of bars. In other words, plain concrete columns should be absolutely forbidden, since they have no place in building work. When they are, we shall have fewer failures to record.

As for considering eccentric load on plain concrete columns, the writer considers this procedure as flirting with danger. It is perfectly logical and correct to consider this in the development of a discussion on columns, but, in the writer's opinion, all such discussion should be plainly labelled as theoretical and not practical, since the man who has had little experience is not in a position to distinguish the practical limits of theory.

In connection with the design and construction of what are commonly known as longitudinally rodged columns, the writer has found that where such columns are used, that is, for carrying light loads as in the upper stories of buildings, and in which the unit stresses are low, i.e., below 500 lbs. per square inch on net section, a continuous spiral at a wide pitch is better than a number of loose ties. Such a spiral at 6 to 8-in. pitch by virtue of being continuous, is unquestionably better fitted to stay the longitudinal bars than a number of disconnected, loosely fastened hoops and at the same time requires only a trifle more steel. It also eliminates the difficulty experienced in holding longitudinal bars and the hoops themselves in place. By using two light spaces on such a spiral it can be shipped, "knocked-down," and when expanded, and the spacers set opposite one another, a fairly stiff cage is formed to which the vertical bars can be fastened; this insures proper spacing of bars and hooping, which the loose

more efficient splice has been found than the simple method of lapping bars a certain number of diameters dependent upon the stresses in same. Such a splice depends on bond between concrete and steel for its strength and it is highly important therefore that the bars are entirely surrounded by concrete, not less than two diameters of bar centre to centre of bars. This means that where columns of the same size and also of different sizes are spliced, the bars from the lower story column should be bent in on easy bends to form a circle well inside the circle formed by the bars above, rather than to have them close together, for where they touch, no bond value can be developed.

Splicing bars by means of pipe sleeves is not done very often at present. Such splices do not tie the different stories of a building together as well as lap splices, nor are the bending stresses likely to be developed in the columns so well provided for, with the use of pipe-sleeve splices. If the sizes of column bars are limited to 1½ in. to 1¼ in. bars, as a maximum size, splices can be developed without difficulty by bond between lapped ends of bars.

In special cases, as at footings, as combination lap and bearing splice between columns can be used to good advantage, the vertical bars resting on a steel or cast iron ring will transmit some of their load direct by bearing of ring on the concrete, and the remainder by bond between concrete and the stub bars.

The Wigan Corporation have decided to make an application to the Local Government Board for sanction to a loan of £3,515 for the purposes of constructing new sewers through the Poolstock and Worsley Mesnes districts of the borough.

### MAIN ROADS IN GREATER LONDON.

A second conference of local authorities and professional bodies convened by the Local Government Board to consider reports from sectional conferences on proposals for new roads and improved roads for London was held at the Guildhall, Westminster, on Friday, under the chairmanship of Mr. William Regeher.

A report was submitted summarising the conclusions of the six sectional conferences. These bodies recommended the construction of two circular roads: a northern one linking up districts from Leyton to Kew Bridge, and a southern one from Eltham to Putney, in each case utilising existing thoroughfares where possible. Other projected roads dealt with a detour from the narrow streets of old villages north of Tottenham and a fresh road to the Victoria and Albert Docks. The question had, the report stated, been seriously considered as to whether the work of the conferences should proceed. It was decided that the proper course was to continue, chiefly in order that the details of important road improvements should be prepared, by which, in the event of work being required for large bodies of men, a most useful outlet for labour should be immediately available.

Mr. Hayes Fisher observed that, in his opinion, the traffic branch of the Board of Trade should be abolished, and that the duties, powers, and finance of the Road Board should, after the war, be transferred to the Local Government Board. The Home Office might limit its functions to the regulation of traffic. To make progress in this matter affairs should be in the hands of a single Cabinet Minister.

The conference adopted a resolution moved by Mr. Elgood, of Ruislip, asking that a guarantee should be given to local authorities preparing town-planning schemes that a considerable portion of the cost of arterial roads would be borne by the central authority.

A further resolution, moved by Sir Aston Webb, R.A., and seconded by Sir A. R. Stanning, was also adopted, declaring it to be imperative that steps should be immediately taken through the Local Government Board or other authority to secure the routes of such new or improved thoroughfares as are set forth in the report of the conference.

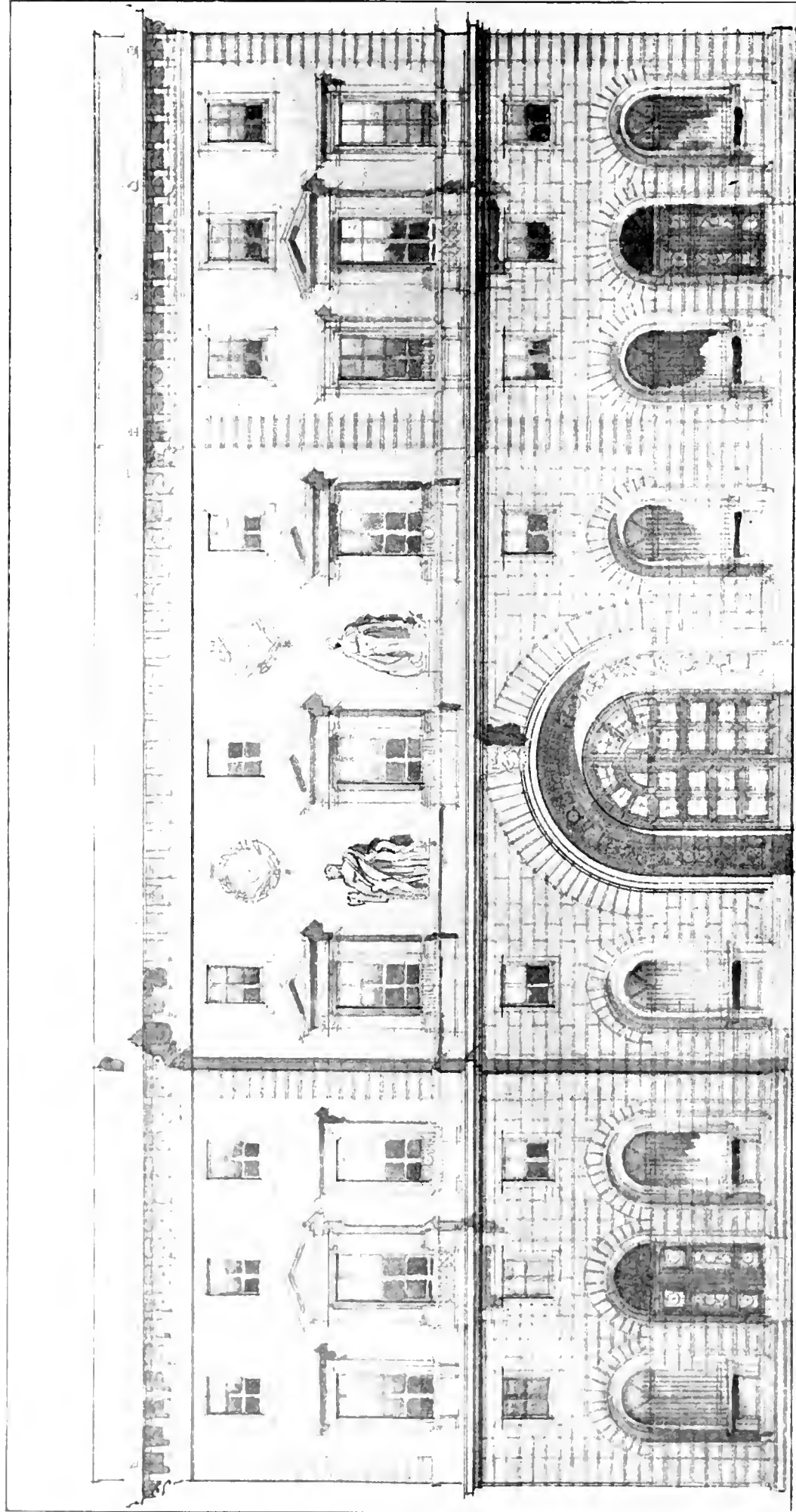
The Huddersfield Town Council have decided to apply to the Local Government Board for financial assistance to build 300 houses for the working classes. It is proposed to build twenty-five houses at Bradley, eighty at Long Lane, Dalton, and 195 at Waterloo.

The county council of Dumfriesshire have approved a proposal for carrying out, at an estimated cost of £3,180, improvements on the Loch Lomond road from the boundary of Perthshire to five miles south of the boundary. The scheme has been submitted to the Road Board.

The Bishop of Colombo, who has just left Ceylon on a visit to England, will take the opportunity, says *Indian Engineering*, of consulting Mr. G. H. Fellowes Pryme, F.R.I.B.A., of Westminster, about the plans for the cathedral to be built on the Galle Face, the famous promenade at Colombo.

At the meeting of the East Suffolk County Council, held at Ipswich, it was reported by Mr. W. Jervis, the county surveyor, that the expenditure upon roads and bridges during the past year had been £45,000, a reduction of £11,000 on the previous twelve months. Towards the cost of surface tarring on main roads, estimated at £5,014 for the ensuing year, a grant of £2,393 had been offered by the Road Board. The council decided to liberate their roadmen to work for farmers as far as practicable.

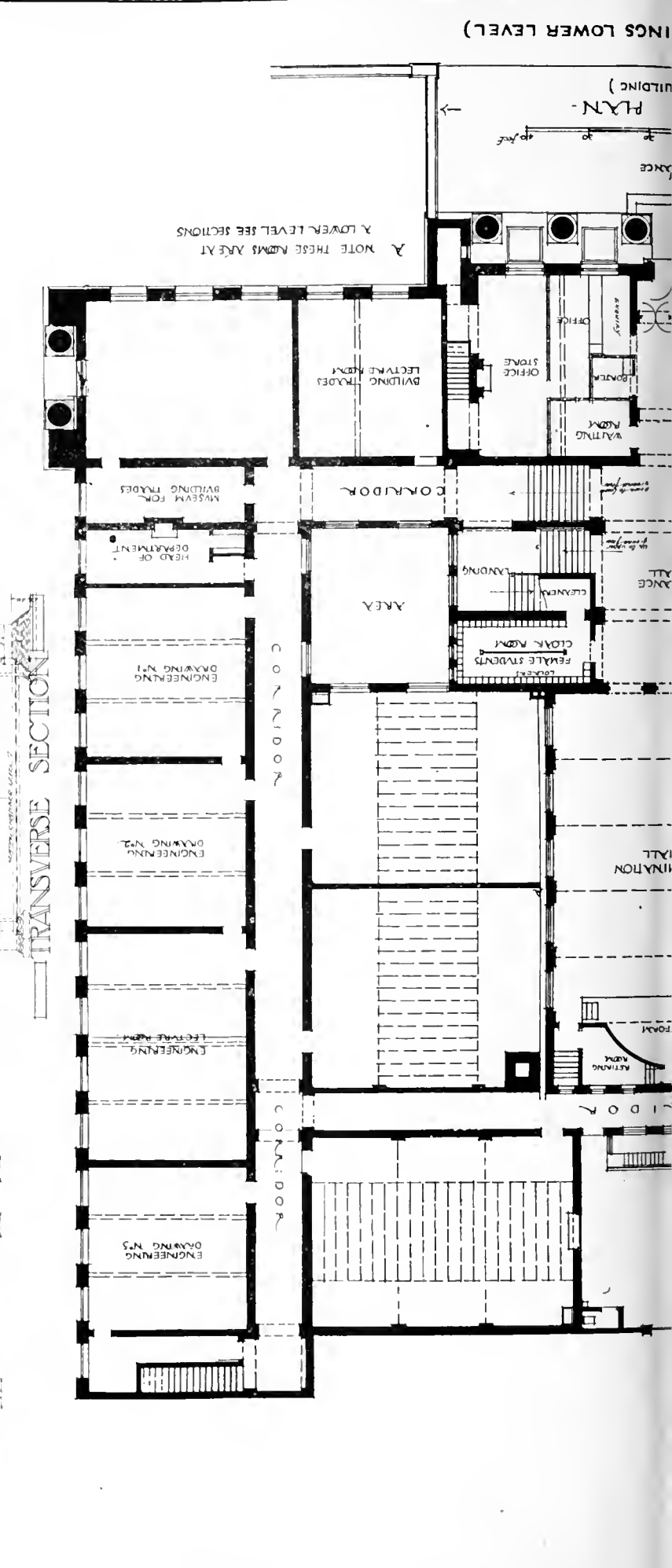
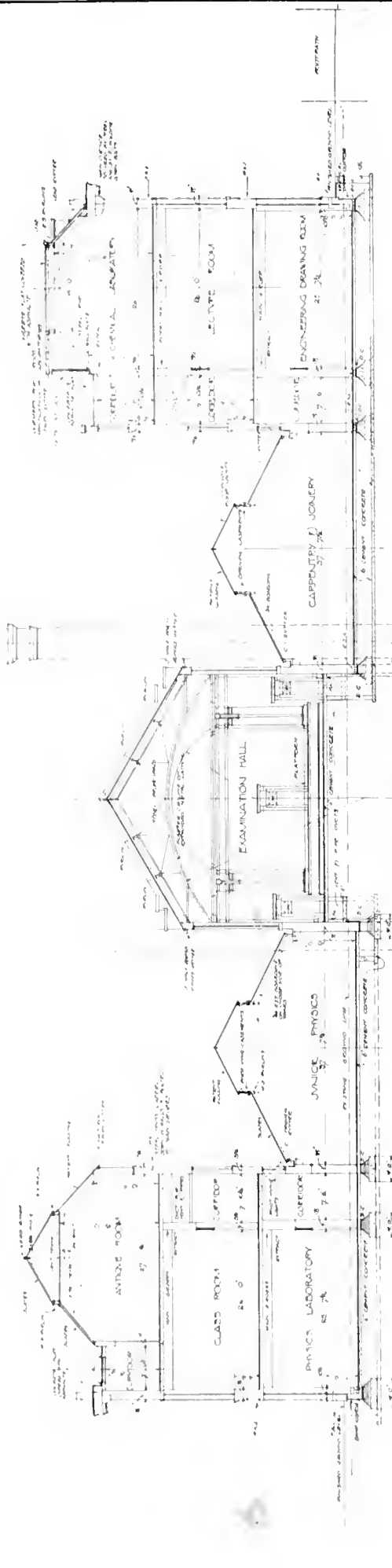
At the annual meeting of the Chelmsford Cathedral Chapter last week an interesting announcement was made respecting the seventh-century church of St. Peter and Marum at Bradwell-on-Sea. This ancient edifice will, through the generosity of the Parker family, be conveyed to a trust, so that it may be preserved to the new diocese for its former sacred use. Lately the building has been used as a barn. A report regarding the structure has been made by Mr. Peers, F.S.A., Chief Inspector of Ancient Monuments under the Commission of Works, and a scheme for the restoration of the fabric has been prepared. The work will not be undertaken until after the war.



THE DOUANE

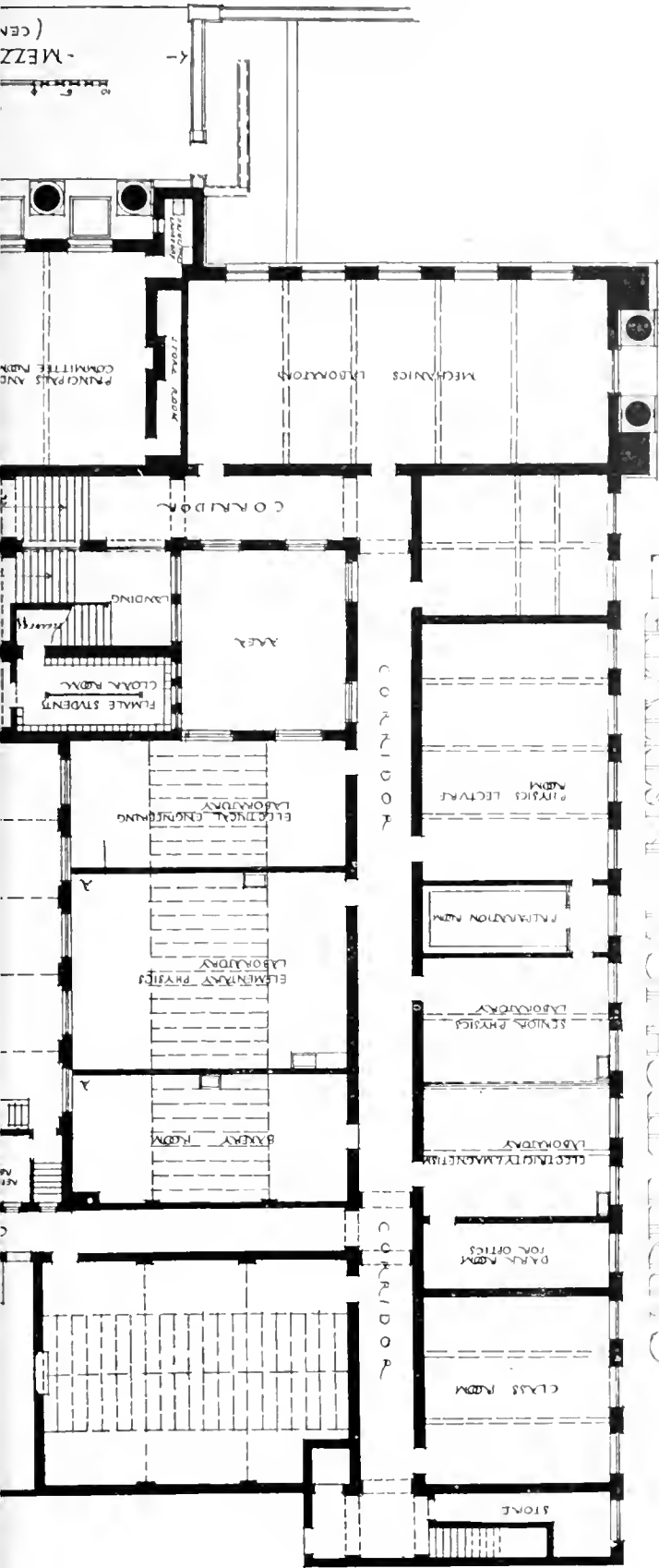
THE DOUANE, ROUEN.—Drawn by Mr. ALIC<sup>K</sup> G. HORSNELL, Soane Medallist and Tite Prize-man.



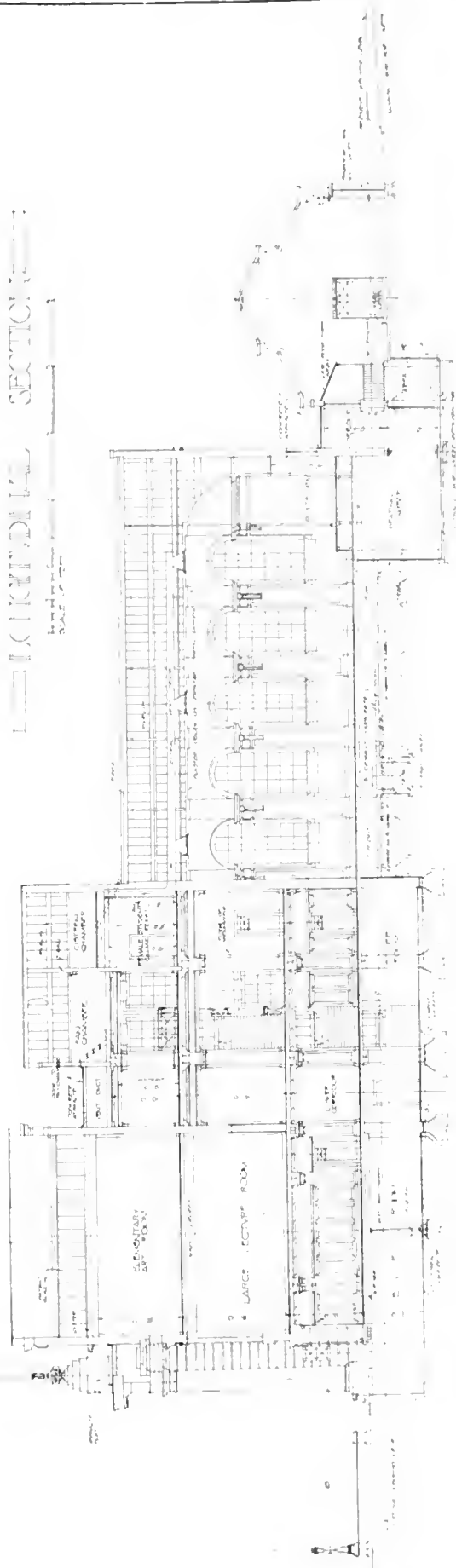


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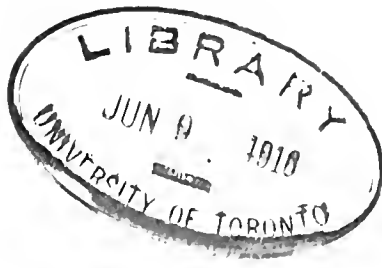
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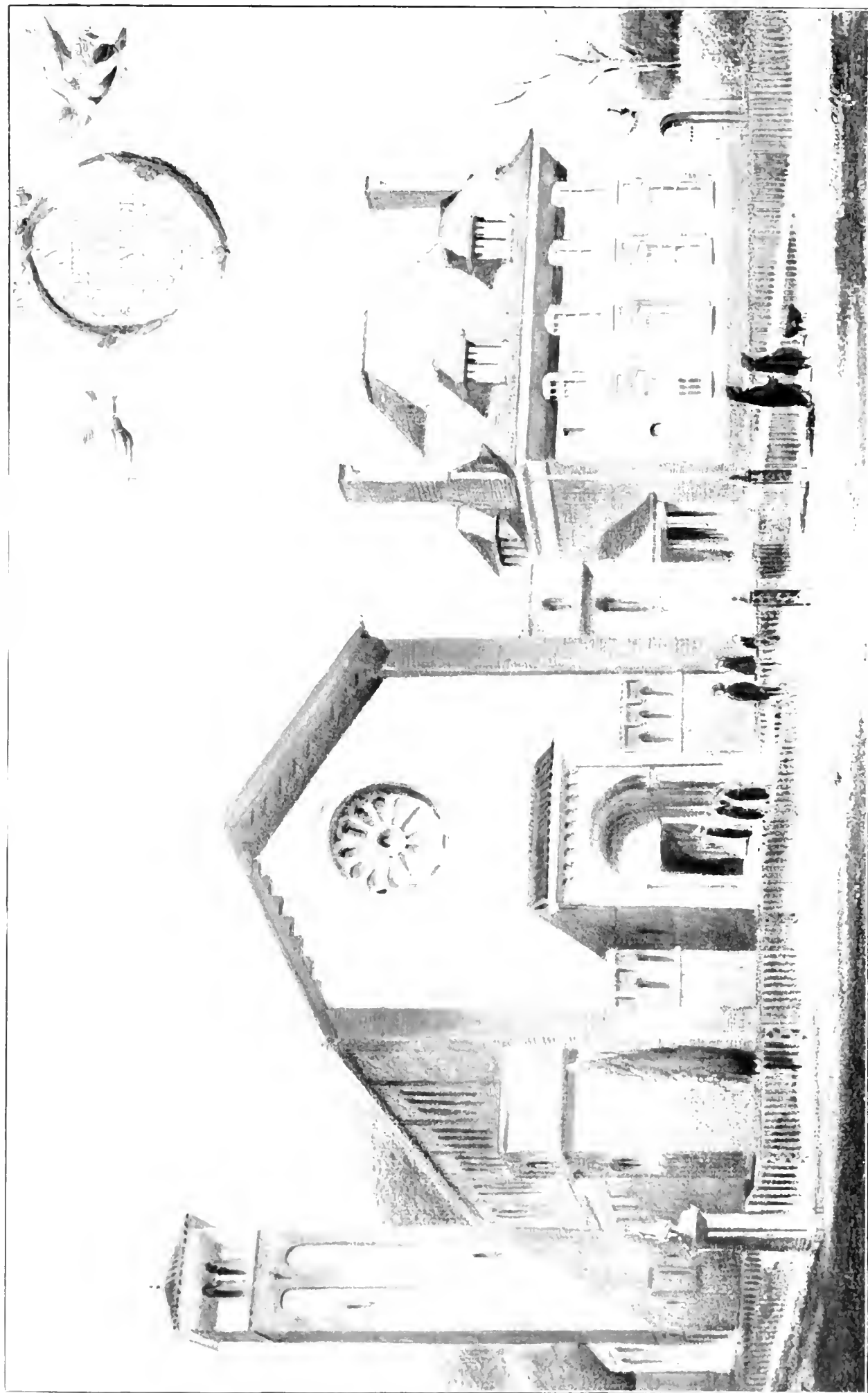






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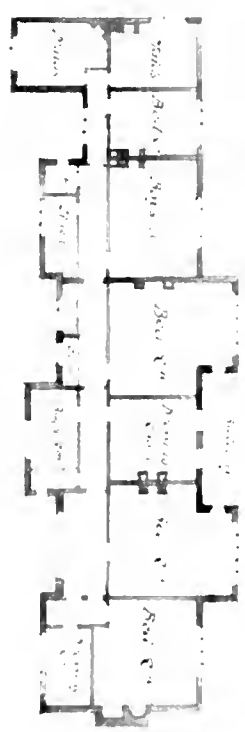




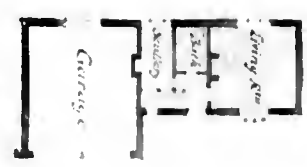
ST. PETER'S CHURCH AND VICARAGE, SOUTHFIELD ROAD, ACTON GREEN, W. MR. W. M. A. PITE, F.R.I.B.A., Architect.



SOUTH ELEVATION



FIRST FLOOR PLAN



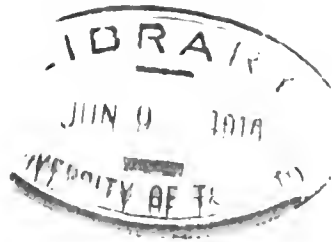
WEST ELEVATION



HOUSE RECENTLY BUILT AT LIMPSPFIELD

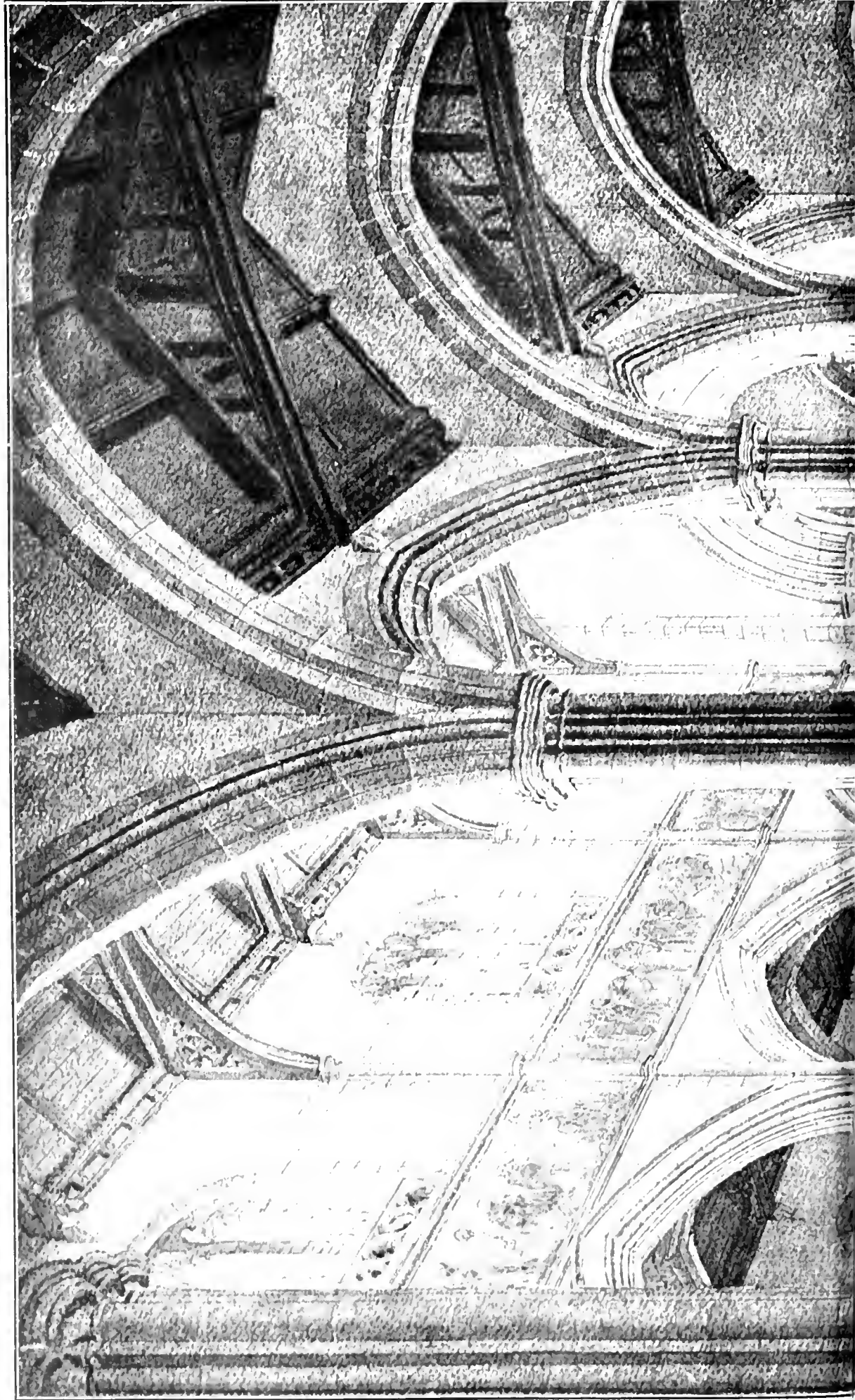
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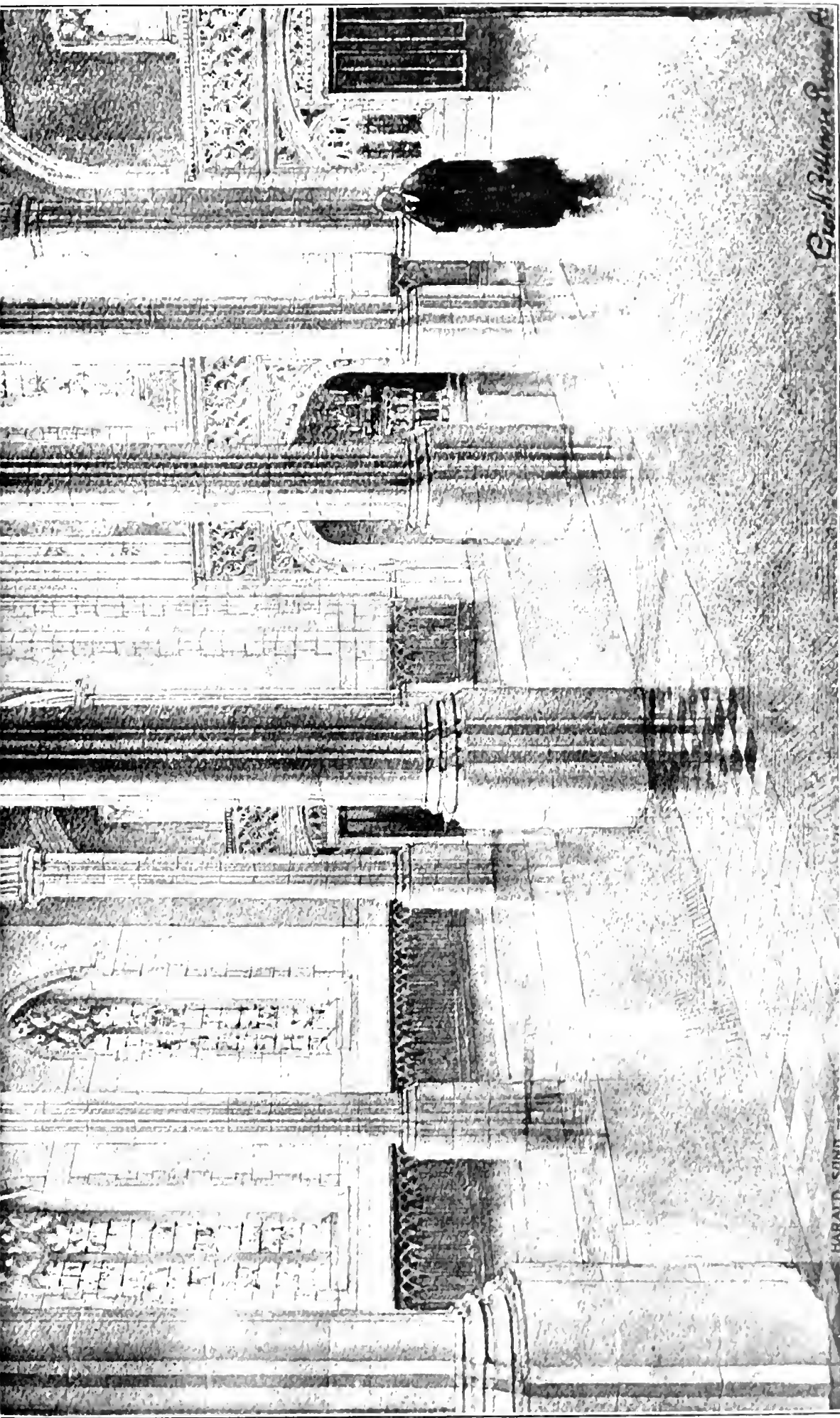


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THE BUILDING NEWS, MAY 24, 1916.







HOLY TRINITY CHURCH, ENMOUTH, DEVON. INTERIOR, LOOKING S.W. MR. G. H. FELLOWS, P. 88. G. L. R. A. V.

*Charles Fellows*

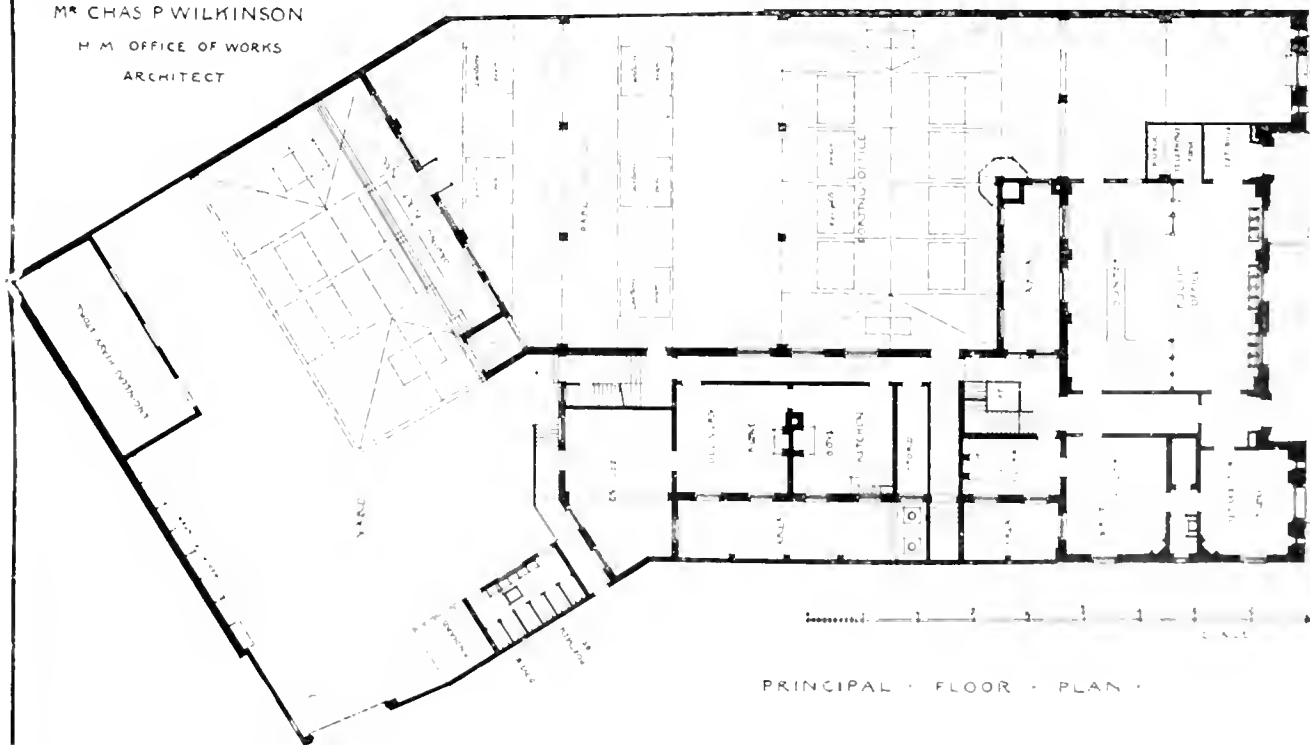
HAROLD COOPER





# NEW · GENERAL · HEAD · POST · OFFICE · CARLISLE.

MR CHAS P WILKINSON  
H. M. OFFICE OF WORKS  
ARCHITECT



## Our Illustrations.

### HOLY TRINITY CHURCH, EXMOUTH.

The interior view illustrated to-day, from the Royal Academy Exhibition drawing, is taken looking across the church in a south-west direction from the north transept. The original church was a sample of the worst type of so-called Gothic churches built about 1850, and consisted of a brick and stucco building, with columns constructed partly in stone and partly in cast-iron, cement-moulded arches, with clerestory above, and a flat lath-and-plaster, imitation-groined roof. Galleries occupied the upper part of the aisles and west end of nave, cutting half-way into the columns. The only redeeming points in the original building were its lofty proportions and solid, strongly built walls. The complete remodelling and partial rebuilding of the church were taken in hand some few years ago from the designs and under the supervision of Mr. Geo. H. Fellowes Prynn, F.R.I.B.A., of Westminster. The work included a completely new chancel, chapel, vestries, and organ chamber, and transepts; the casing of the whole of the tower, nave, and aisles in stone; inserting new doorways, tracery windows, and entirely remodelling the design of the tower, including the forming of a lofty western arch to the tower, with baptistery under (which is shown in the drawing), the renewal of the nave columns, arches, and clerestory windows in stone, and the preparation for decorative mosaic panels on the nave walls. The old oak seat ends have been used as a dado around the aisle walls, and a new apparatus for heating and electric light installed. Messrs. R. Wilkins and Sons, of Bristol, were the builders, the heating being carried out by Messrs. C. P. Kinnell and Co., of Southwark Street, London, S.E. The total cost of the work was about £15,000.

### ST. PETER'S CHURCH AND VICARAGE, SOUTHFIELD ROAD, ACTON GREEN.

Our illustrations shows the complete scheme: the vicarage and campanile are, however, not yet built. In treatment, the church is studiously quiet and simple, of stock brickwork, with red dressings, in which is set at the western end the Portland stone doorway and rose window. In the tympanum of the door is a mosaic emblematical panel with inscription. Spaciousness and simplicity have been aimed at in the interior, the passage aisles being separated from the nave by a colonnade of ferro-concrete columns and semi-circular brick arches, the column caps being boldly decorated in colour, the subjects being emblems. Mr. Pite is not responsible for the pulpit, which was formerly in All Saints' Church, Gordon Square, or the stalls, sedilia, font, and other fittings, which are reused. The vicarage will be built of stock brickwork with a slated roof, and a pleasant feature will be a little enclosed garden, surrounded by the church, vicarage, and existing mission hall. The general contractors were Messrs. J. Dorey and Co., Ltd. The architect is Mr. William A. Pite, of 116, Jermyn Street, St. James's. This drawing is in the Royal Academy Exhibition this year. The original competition design for the church was entirely different from the executed building, and will be found illustrated in the BUILDING NEWS for August 6, 1912.

### HOUSE AND GARAGE RECENTLY ERECTED AT LIMPFIELD.

This house faces on the south side a very fine view, and the plan is therefore extended as much as possible so as to give all the rooms the benefit of the outlook. Some preliminary levelling of ground and building of foundations with the stone got out of the ground was done by Mr. A. Brasin, of Limpfield, and the rest of the building was carried out by Mr. Job Layford, of Forest Rex. His own tiles and bricks being used for the work. As the site is a very exposed one, the hollow walls are faced with rough-cast as an additional safeguard. The quoins and joints generally are of stone. The window frames are of teak, with iron casements and leaded glass by Messrs. W.

Morris and Co. The whole of the principal joinery work and flooring is in oak, and the dining-room has a beam ceiling in oak. The heating and electrical installations were done by Messrs. Cash and Co. The drawing illustrated is in the Royal Academy Exhibition. Mr. Arthur Keen, F.R.I.B.A., of Gray's Inn, W.C., is the architect.

### THE NEW TECHNICAL INSTITUTE, CARDIFF.

The above building was opened recently by the Lord Mayor of Cardiff. Owing to the war the completion of the building has been delayed, and the furnishing has had to be postponed. The building faces the King Edward VII. Avenue, in Cathays Park, Cardiff, adjoining the Glamorgan County Hall and opposite the University College of South Wales and Monmouthshire. It is faced on the three principal sides with Portland stone from the quarries of Mr. F. J. Barnes, of Portland. The whole of the bricks were obtained locally from the Phoenix Brickworks. The floors throughout are of 6 ins. of concrete between rolled steel joists, these and the steel roof principals, etc., having been supplied by Messrs. A. D. Dawney and Sons, Ltd., of London and Cardiff. The main roofs are covered with Dolmen silver grey random slates, and the other floors are covered with Portmadoc blue slates, both being supplied by Messrs. Sessions and Sons, Ltd., of Cardiff. The halls, corridors, lavatories, etc., are finished with terrazzo flooring, supplied and laid by the Marble Mosaic Company, of Bristol. The floors of the rooms are finished with pitch pine wood blocks. The heating and ventilating of the building has been designed on most up-to-date principles. The heating consists of hot-water apparatus worked from central boilers with accelerated circulation. This system provides a particularly uniform temperature throughout the building, and also economises the consumption of fuel. Provision is made for working in sections and also for shutting off any portion not required. For the ventilating of the building fresh air inlets are provided in connection with the radiators, each inlet being under control. The vitiated air is extracted through various openings into sub-ceilings and ducts communicating to two large exhaust fans. A separate fan is also provided for the ventilation of the central hall and a further ventilating fan for the lavatories. In the chemical department, in addition to the ordinary ventilation of the laboratories, a special fan is provided for extracting the fumes from the fume closets, this being kept quite distinct from the general ventilation of the building. This system has been designed and carried out by Messrs. G. N. Haden and Sons, engineers, Trowbridge. The sanitary goods throughout have been supplied by Messrs. Shanks and Co., Ltd., Bond Street, London. Amongst other sub-contractors may be mentioned the following: Messrs. George Wragge, Ltd., of Manchester, steel casement windows throughout, leaded lights, wrought-iron balustrading to main and secondary staircases, bicycle entrance, etc.; Messrs. Smith, Major and Stevens, of Northampton, goods hoist; the British Prism Syndicate, Ltd., pavement lights; Ewart and Sons, Ltd., lightning conductors and copper flag staff; North of England School Furnishing Company, of Darlington, folding partitions; H. W. Cashmore and Company, lead rainwater heads; James Gibbons, of Wolverhampton, door and window furniture, etc., throughout; Alfred Brown and Company, of Birmingham, gearing to lantern lights; the De Lank Quarries, Ltd., Cornwall, granite curbing around building; Messrs. John P. White and Sons, Ltd., Bedford, oak fencing and gates; Messrs. John Williams and Sons, Ltd., of Cardiff, various castings, storage tanks, etc.; Messrs. D. Morgan and Sons, of Cardiff, fireplaces, sinks, etc.; electric light installation by Messrs. H. J. Cash and Co., of Westminster, under the supervision of the City of Cardiff Electric Light Department. The main staircase is constructed of reinforced concrete, and was carried out by the general contractors. The stone carving to main entrance, etc., was carried out by Mr. Albert H. Hodge, of London, and the fibrous plaster work to the assembly hall by Mr. T.

A. Jones, of Cardiff. The general contractors for the building were Messrs. E. Turner and Sons, Ltd., of Cardiff, who have been the contractors for the majority of the buildings carried out in Cathays Park, and the architects of this school are Messrs. Ivor P. Jones and Percy B. Thomas, also of Cardiff, who won the competition for the building in 1911. The clerk of works was Mr. W. R. Irwin, of Malefant Street, Cardiff. We give the chief plan and two sections as erected. The competition drawings for this building appeared in the BUILDING NEWS for September 19, 1913.

### THE DOUANE, ROUEN.

Mr. Alick G. Horsnell has lent us the accompanying measured drawing of the Custom House at Rouen. Its façade is about eighty-two years old, having been built between 1835-48 from designs by M. E. Isabelle and replacing a building on the same site of the time of Louis XV. The carvings of the earlier Douane were executed by Guillaume Cousteau. The more modern present structure represented herewith is very familiar to British visitors to Rouen, occupying as it does an isolated position on the Quai de la Bourse on the north bank of the Seine, a few paces west of the direct main thoroughfare, the Rue Jean d'Arc, leading from the municipal railway station to the river. The composition of the front elevation is admirably adapted to its purpose with well-balanced fenestration and slightly projecting wings conceived after the manner of the Later Renaissance, having a reserved appearance, the skyline being marked by elementary simplicity. It is built of local stone, and is four stories in height, one being a mezzanine ranging in a line with the head of the big central archway joining the portal to the courtyard behind. The lower half of the design is rusticated, and a well-marked cornice crowns the front. Some play of fancy is obtained by the introduction of figure sculpture between the central windows, with circular wreaths as a mural enrichment above these statues.

### CARLISLE NEW HEAD POST OFFICE.

The basement of the premises is occupied by storerooms, heating chambers, coal and coke stores, etc. The ground floor mainly consists of public office, with public telephone-room adjoining, having two entrances from Warwick Road, and a large sorting-office; alongside these rooms are arranged the various offices for the postmaster and his staff, accessible from a private side entrance. The floors of the public office and vestibules are covered with terrazzo. In connection with the yard a new road has been formed on the east side of the site, connecting Warwick Road with Mary Street. On the first floor are the telegraph and engineers' rooms, with retiring accommodation, and on the second floor the telephone exchange, with the necessary test and battery rooms, dining-room, kitchen and offices, and retiring room. The upper floors are served by a lift and two staircases. The façade to Warwick Road is built in Otterburn stone, the architectural style being of a modern Renaissance type. The two end bays have a rusticated plinth up to the stringcourse level at the height of the first floor. Above this level, rusticated angles run up to the cornice, enclosing three-quarter Roman Doric fluted columns. The centre bay of the façade is divided by pannelled Doric pilasters standing, as in the case of the end bays, on a rusticated base course and string. The course running along the whole façade is surmounted by an ornamental parapet. The two doorways are square-headed, and surrounded by an enriched architrave with cornice over, the doors themselves being of teak. Along the centre part of the façade between the doorways a balustraded parapet screens the light area to the basement rooms. Mr. Charles P. Wilkinson, H.M. Office of Works, is the architect.

The title on our plate of the Maternity Hospital, Clapham, last week, gave the name of Mr. Alfred L. Hart, instead of Mr. Alfred H. Hart, the senior partner of the firm of Messrs. Hart and Waterhouse, the architects, whose names appeared correctly in the letterpress description of the building.

## Correspondence.

### ART CRITICISM.

To the Editor of the Building News.

SIR,—That art criticism is rendered more readable by a "literary touch" will probably be conceded, and even a "bill of costs" is not made less clear and acceptable to the client by rounded and cultured sentences.

Many wealthy purchasers of objects of art are guided in their decisions to a large extent by art critics, and it is therefore of importance that the real meaning of the criticisms should be clearly expressed and so definitely set forth that the untutored mind may be correspondingly cultivated.

A professional art critic need not be either a musician, a painter, a sculptor, an architect, or an engraver; but he should undoubtedly possess such an intimate knowledge of the technique as well as the theory of the particular art he is criticising as to make his criticisms of use and value to the uninitiated. During the last few years, however, many critics have adopted such high-flown and unmeaning language that it is impossible to decide, from their writings, whether the work criticised possesses real merit or whether it does not. They read into the works ideas and methods which, probably, were never thought of and never intended by the artists themselves. Further, a critic who is only able to say that a work of art is good or is bad, without at the same time being able to state, in clear, intelligible terms, wherein it is good or wherein it is bad, has mistaken his vocation.

William Morris once said "he likes a picture because it's jolly well done; what's the use of making a damned fuss about it?" and, although that sentiment is crudely expressed, one quite understands what Morris meant.

Much of the art criticism of to-day is so overwhelmed by literary fireworks that the ordinary reader cannot make up his mind whether the critic thinks that the work has been "jolly well done," or whether the artist should be relegated to his studies.

For example, we are met, in various criticisms on the Royal Academy Exhibition, with such elusive words as the work under notice is too "purely objective"; that it is not sufficiently "temperamental"; that the "luminosity of the articulation" is not so "personal" as could be desired; that the modeller shows entire oblivion of the material in which his work is produced; that he has not sufficiently "punched" it in one place and scraped it in another; or has too soon forgotten those "forcing" and "commanding" effects which the Grafton Galleries have so well illustrated; that the architecture, whilst showing "restraint" and "simplicity," is wanting in that "virility" which atmospheric conditions so clearly invite; and so on, and so on.

Another phase which the modern critic has adopted is to bestow blame upon the unhappy artist because he has not caught the "tone value" of the productions of Bruno; or does not possess the Jonesian "touch," nor the Robinsonian "cult," without which it would be preferable that the respective artists sought other means of earning their livelihood.

The art critic of to-day has the power, which the Press affords, to cast into oblivion real talent and to bring success to the man who, with obviously little study, casts before an uneducated public some slap-dash and crude work pronounced "original," the work of an hitherto undiscovered genius, and brought into unmerited prominence by the grandiloquent and unmeaning phraseology, concealing, perhaps, insufficient knowledge on the part of the art critic.

I am not an art critic, and, maybe, have no right to criticise criticism, but I venture to suggest that, for the future instruction and benefit of art patrons and lovers of art, they may be supplied with language which will enable them to understand and appreciate the grounds upon which the art critic has based his admiration or framed his condemnation.—Your most obedient servant,

WM. WOODWARD

Church Row, Hampstead, May 19, 1916.

### LEGAL INTELLIGENCE.

**SPENCER, SANTO AND CO. v. H. M. OFFICE OF WORKS.**—This action is still pursuing its tardy course before Mr. Pollock, Official Referee, at the Royal Courts of Justice. It is a claim by the debenture holders of the plaintiff company, a firm of builders, for £297,107, the alleged balance due on the contract for £473,000 for building the new Local Government Board offices in Parliament and Charles Streets. Plaintiffs alleged that the buildings they were called upon to erect differed materially from the original drawings by Mr. James M. Brydon. In November, 1901, Mr. Brydon died, and the plaintiffs alleged that they were greatly delayed and the works were disorganised by the non-supply and delay in supply of instructions, drawings, and details, and by the failure of the defendants to order and their delay in ordering goods and work to be supplied, and by failure to select and supply materials for the work and by supplying materials of an inferior character. The Office of Works claims that the contractors were only entitled to £400,000, and not £473,000. Mr. Holman Gregory, K.C., Mr. J. A. Compston, K.C., and Mr. Inman are appearing for the plaintiffs; and Sir R. B. Acland, K.C., Mr. C. F. Lowenthal, and Mr. H. M. Given for the defendants. Mr. Philip H. Patten, builder's foreman to the plaintiff company, has been under cross-examination during the present week, and some sharp passages of arms have occurred between the witness and Sir Reginald Acland, who was endeavouring to show that the estimates of prime costs made for the contractors were rough-and-ready guesses at the actual outlay. The witness displayed a shrewd humour and a quickness in seeing the tenor of the cross-examination which have enlightened what were necessarily prosaic proceedings.

**THIRD SURVEYORS AND AWARDS.** A decision of importance to surveyors was given by Judge Cluer in the Shoreditch County Court on Thursday. The plaintiff, David Morris, of 93, Darent Road, Stamford Hill, a builder, asked that an award that had been signed by Mr. Adams, a surveyor, under the London Building Act, should be set aside, the respondents, being Messrs. Clozenberg and Hopkins, Ltd., of 36, Charing Cross Road, W.C., picture palace proprietors. Mr. H. J. Tarrell appeared as counsel for the plaintiff, and Mr. Amicobind Reed, barrister, for the defence. The ground for asking for the award to be set aside was that it was signed by Mr. Adams only, and not by one surveyor appointed by either the appellant or the respondent, or by three or two surveyors, as required by Section 91, London Building Act. It appeared that the appellant was the owner of some building land adjoining the respondents' picture palace. Appellant was preparing to build six lock-up shops, and Mr. Pratt, surveyor to appellant, prepared a party structure notice. Mr. Beard was the surveyor to the respondents. When building operations were started another wall was discovered, so that it could be said there were two party-walls, but really they were externals. A third surveyor was appointed as required by the Act, Mr. Adams. Then the matter found its way to the Chancery Court, and it was agreed that there should be no interference with walls "D. E. and G.," but no mention was made of "C. D." Then a reference was made to Adams, and on April 10 he published an award, which he alone signed, which, counsel contended, was not one contemplated by the Act, it not being within the province of surveyors to publish such an award. He took upon himself to call "C. D." a party-wall, but he had no jurisdiction as to it, as it was not included in the party wall notice. He was really only asked to find when it would be convenient to start work. His Honour would know that an award had to be appealed against within fourteen days or it became conclusive. Then as to the award, there was a technical point of the greatest importance to surveyors, and that was that those references to surveyors under the L.B.A. were as arbitrators and not as umpires. If there was only one surveyor, of course he could decide, but if each side had one and they appointed a third in accordance with the Act, then the award had to be signed by a majority of two, if not the whole three, to be valid. Mr. Reed said he could not agree with the point; the language in the Statute was directory and not imperative, and therefore the fact that the award was only signed by Mr. Adams did not vitiate it. He was informed that it was the universal custom amongst surveyors to appoint a third, who signed the award solo. Judge Cluer said if it was suggested that a third surveyor

was to be appointed who could issue a solo award, it was in direct contradiction to the idea of appointing a second and a third. Anyway, the first point was fatal. Mr. Adams had mistaken his position, he had taken the position of umpire, which was wrong, and he must set aside the award. If it was the practice of honest surveyors for the third to issue solo awards, then the sooner the practice was altered the better for them, as it was illegal. Mr. Tarrell asked as to the £10 10s. that had been paid for the award, and his Honour said they would have to sue for that, he had to pay over it.—The appeal was then allowed with costs.

### PROFESSIONAL AND TRADE SOCIETIES.

**EDINBURGH ARCHITECTURAL ASSOCIATION.**—The members of this association recently visited the new Royal (Dick) Veterinary College. Mr. D. McArthur, Lic.R.I.B.A., of Edinburgh, architect of the new buildings, exhibited the plans, and described the arrangements made to accommodate the different departments of the work of the college, which occupies a site of 250 ft. frontage with a depth of 250 ft., previously occupied in great part by a brewery. The front portion of the building is devoted to teaching and administration, and contains laboratories, lecture theatres, hall seated for 500 persons, professors' rooms, and staff accommodation, also a large museum, photographic rooms, students' reading and smoking rooms, lavatory, and store accommodation. The clinical department, which occupies the buildings in the rear, has been designed for the treatment of all kinds of animals, there being special accommodation for horses, cows, and sheep, wards for dogs, cats, with enclosed runs, and operating theatres for large and small animals respectively. X-ray and photographic rooms are provided for both departments. At the close a vote of thanks was accorded to Principal Bradley and the architect by Mr. John Wilson, F.R.I.B.A., vice-president, in the absence of Mr. MacLennan.

**"THE ANCIENT CROSS SHAFTS AT BEWCASTLE AND RUTHWELL."** These great Runic cross-shafts at Bewcastle and Ruthwell, which contain three-fifths of all the Anglian Runic letters in existence, were the subjects of the annual Bede Lecture delivered before Cambridge University on Saturday by Dr. G. Forrest Browne, late Bishop of Bristol, and for many years Disney Professor of Archaeology. The mention of the first year of King Egfrith dates the Bewcastle shaft at 670. The Ruthwell shaft has upon it long portions of the Anglo-Saxon poem, "The Dream of the Holy Rood," and is probably several years later. For the last four or five years these monuments have been prominent subjects of discussion among experts and others. Professor Cook has placed them in the twelfth century, as the work of David I. of Scotland. Commendatore Rivoira places them in the twelfth century. The other experts maintain the early date. Dr. Browne is of opinion that "scarcely anything if anything which we know in detail of the history, the church work, the language, and the script of David and his period fits in with the phenomena of these monuments," while, on the other hand, everything we know in these respects of Northumbria and the Northumbrians about the year 670 fits in completely with the phenomena. Dr. Browne attributes the Bewcastle and Ruthwell shafts to a school of art created by Italian workmen in the earlier times of Wilfrith and Biscop, a school which continued to exist to the times of destruction by the Danes. The New Testament subjects and the general treatment of the Ruthwell cross point directly to the Art of the East, not of the West. Dr. Browne claims that the author of the earlier parts of "The Dream of the Holy Rood," from which the verses on the Ruthwell cross are taken, was Caedmon.

Mr. Charles Griffiths, sewage works manager to the Droydsden Urban District Council, has been appointed manager of the Heywood Corporation sewage works.

The Local Government Board have approved modified plans submitted by the Nottingham Health Committee for additions to Bagthorpe Hospital. The estimated cost is £5,120.



## COMPETITIONS.

**HENRY SAXON SNELL PRIZE.**—At the meeting of the Port Sanitary and Hospitals Committee of the Liverpool Corporation, held on Thursday, it was reported that the council of the Royal Sanitary Institute, on the report of the adjudicators, had awarded the medal of the institute and the Henry Saxon Snell prize of fifty guineas to Dr. William Hanna, assistant port medical officer for Liverpool. The award was given for an essay on "Suggestions for the Improvement in Sanitary Arrangements and Sanitary Appliances on Shipboard," and the presentation will be made at a meeting convened by the Royal Sanitary Institute to be held in London on June 9. Dr. Hanna was appointed as an assistant medical officer to the Liverpool Port Sanitary Authority in 1901, and a few years later was also appointed to act as an assistant medical officer of health for the city.

## Building Intelligence.

**KNEBWORTH.** The first portion of the new church of St. Mark's, consisting of the chancel, vestries, north and south transepts and eastern portion of the nave, has been opened for service. Renaissance in style, it is built of red brick, with Portland stone dressings, and roofed with pantiles. A deep band of stone runs below the clerestory eaves, and will be carried round to form the frieze of the facade when that is built. Large isolated columns carry the nave and transept roofs. The chancel is paved with chequers of Portland stone and dark slate, and the rest of the church with deal blocks, with moulded angle bricks against the walls. The ceiling is flat and boarded, being divided into squares by unmoulded ribs; all the fittings are of deal, unpainted, including the altar, the front panel of which is ebonised, as are the top board and plinth of the Communion rails. The choir stalls are also of moulded deal. Mr. E. L. Lutyens, A.R.A., is the architect.

**RANGOON.** There is nearing completion in East Rangoon a school building for the Anglo-Vernacular Boys' School of the Burma Educational Trust. It has a frontage on Thompson Street of 65 ft., with a depth of 58 ft. It is of two stories, each 14 ft. clear height, with provision for extension by a third story. The walls are of brick and the floors and staircases of reinforced concrete with steel girders. The roofs are of reinforced concrete covered with malthead and finished in gravel. The accommodation includes four classrooms each 20 ft. by 20 ft., and eight classrooms 15 ft. by 20 ft. Mr. A. G. Bray, A.R.I.B.A., of Rangoon, is the architect, and Messrs. Howarth Erskine, Ltd., of the same city, are the builders.

## TRADE MOVEMENTS.

**CARPENTERS' WAGES.** An increase in the wages of carpenters and joiners of several districts in the United Kingdom has recently been announced. The rises include: Carlisle, 12d. per hour, and 1s. per week as country allowance; Doncaster, 3d. per hour; Grimsby, 3d. per hour; Huddersfield, 1d. per hour; Oldham, 2d. per hour; Selby, 1d. per hour; Southport, 1d. per hour.

## TRADE NOTES.

The Hendon Wire Rope Works, Sanderland, have been supplied with Shorland's patent exhaust roof ventilators by Messrs. E. H. Shorland and Brother, Ltd., of Farnsworth, Manchester.

Under the direction of Mr. Robert Frow, architect, Irvine, Boyle's latest patent "Air-Pump" ventilators have been adopted for a new hosiery factory, Troon, N.B., and hosiery factory, Irvine.

Red asphalt concrete is being used for the construction of the new roadways on the Goswood Estate, Coventry. The makers are William Shepherd and Sons, Ltd., Milkstone, R. Chiddle, who are making facilities whereby they will be able to deal with a much increased output.

The death is announced, at Hounslow, of Mr. James Drayton, a former surveyor to the urban district council of Sandgate.

## OBITUARY.

The death occurred recently at Norwich of Mr. Edward Arthur Heffer, formerly in practice in Liverpool and London as an architect, and who latterly lived in Norwich. The deceased (his friend, Mr. John E. Burton, architect, of Norwich, writes) was born in London on May 5, 1836, and was the son of Edward Heffer, picture dealer and gilder. He entered the Government Head School of Design at Somerset House when fourteen years of age, and studied there under Mr. Richard Burchett and the visiting masters, J. R. Herbert, R.A., and Richard Redgrave, R.A. He remained there two years, and gained in 1852 the National Medal for linear perspective, the only one awarded in the United Kingdom; he also took the first prize for chalk drawing, and for practical geometry. After spending some months in sketching from nature in the neighbourhood of Hampstead, he was introduced by John Wykeham Archer, F.S.A., and George Lance, the eminent still-life painter, to John Thomas, sculptor of the New Palace, Westminster, and architect of Somerleyton Hall, Suffolk, for the late Sir Samuel Morton Peto, M.P.; Preston Hall, Aylesford, Kent, for Mr. E. L. Betts, and numerous other buildings. Although Mr. Heffer at first worked at modelling and carving, he afterwards helped Mr. Thomas with his architectural work, in which he felt he would better succeed. After being with Mr. Thomas for four years, at the age of twenty-one he went to Liverpool, where he began practice as an architect and designer of ornamental and decorative work. He designed the National School and Public Offices at Wavertree, a school at Walton-on-the-Hill, a warehouse in South Castle Street, Liverpool, for Mr. Ashe; the Mayer Lecture Hall and Art Gallery and the Free Library at Bebington, Cheshire, and Pennant House, at Bebington, for the late Joseph Mayer, F.S.A., and various residences in the neighbourhood of Liverpool. His chief work, however, was the church of St. Bridget, at Wavertree. Mr. Heffer returned to London in 1875, and carried out works at Hampstead and Kilburn. The Red Tower, Messrs. Phillips and Page's music warehouse, Mr. Stuart's shop in the High Road, the Queen's Park Hall, Kilburn, various shops and villas in West End Lane, and the Emmanuel Boys' School at West End Green were designed by him. In 1875 Mr. Heffer made a design for a cathedral to be built on the site of St. Peter's Church, Liverpool, and read a paper on the subject before the Historic Society of Liverpool. When, after some years, the competition was organised, he submitted a design for the cathedral on St. James's Mount, and made a model of it, which was exhibited at the Walker Art Gallery at Liverpool. The style adopted was that of the fourteenth century, and the design followed the usual orientation, with altar at east end, while a central octagon provided many niches for statues on the exterior. In 1892 Mr. Heffer removed to Norwich, and carried out several hotels for Messrs. Bullard, and other works. He found time to enter over seventy competitions, and gained several premiums. Among others, he gained the premium offered for a design for the Albert Memorial Clock Tower at Hastings, and was entrusted with the work of building it. He also obtained the premium of 100 guineas for his design for the improvement of the White Rock Parade at Hastings, and that of 50 guineas for his design for the Town Hall. In Hastings, too, he built Tudor House for the late Alderman Ross. At the age of nineteen, he exhibited at the Royal Academy, the work being a design for a bishop's tomb, and again in subsequent years his work was to be found there.

The death has occurred in Glasgow, in his seventy-third year, of Mr. John D. Parker, M.Inst.C.E., formerly assistant engineer to the Clyde Trust, afterwards associated with Sir William R. Copeland's firm, and for the past seven or eight years in business on his own account. Mr. Parker was born at Beith, Ayrshire, and was trained in the office of Mr. David Smith, civil engineer and land surveyor, Glasgow. He afterwards entered the service of the North British Railway

Company under the late Mr. James Deas, who had succeeded his father as engineer-in-chief to that company. In 1869, when Mr. Deas was appointed engineer to the Clyde Navigation Trust, Mr. Parker went with him as assistant. While in that service he took part in the development of the harbour of Glasgow, including the construction of the Kingston Dock on the south and of the Queen's Dock on the north side of the harbour. Leaving the Clyde Trust service, Mr. Parker became connected with the late Sir William R. Copeland's firm, and the execution of many important water, drainage, and other engineering undertakings carried through by it came under his special supervision. In 1909, about two years after the death of Sir W. R. Copeland, Mr. Parker was joined in establishing a business by his son, Mr. W. A. Parker, and during the subsequent period the firm has carried through numerous engineering schemes of importance, including the Kelso burgh waterworks, the Glenquoy Reservoir and the tidal basin for the London and Glasgow Engineering and Shipbuilding Company at Govan, now absorbed in the extensive works of Harland and Wolff, Limited.

Mr. Alexander Payne, F.R.I.B.A., F.S.L., late of 30, St. James's Square, S.W., and for more than forty years district surveyor for South-East Hackney and North Bow, died on the 10th inst., aged seventy-one years. Mr. Payne became an Associate of the Royal Institute of British Architects in 1870, and a Fellow in 1882; he was placed on the List of Retired Fellows three years ago. In 1880 he became a Fellow of the Surveyors' Institution, and in that year he received from the London County Council the appointment of district surveyor for parts of Hackney and Bow, which he resigned about three years ago.

## PARLIAMENTARY NOTES.

**HOME-GROWN TIMBER SUPPLIES.**—In introducing the vote for £135,160 to complete the sum required for the Board of Agriculture and Fisheries on Monday night, Mr. Acland claimed that the Board was doing its proper share of the nation's work during this time of war. The Home-grown Timber Committee was appointed last November to increase our supplies, not by supplanting, but by supplementing the efforts of the timber trade, especially in regard to the timber needed for Government Departments. They had already supplied or purchased, or were in process of felling and converting, 11,000,000 cubic feet of soft wood for scantlings, sleepers, and props for dug-outs; and 32,000,000 lineal feet of wood for pit crops. Landowners on the whole had been most public-spirited in offering timber at prices which were fair to them, but were undoubtedly less than they could have obtained in the market. The Crown had set a good example in the use of the New Forest and Windsor plantations. The most valuable help in the felling and converting of the timber had been afforded by a forestry battalion raised in Canada. Arrangements were also being made for the employment of 500 German prisoners in felling timber. The inroads which were now being made on home-grown supplies of timber rendered the adoption of a scheme of national forestry at the earliest moment after the war a matter of the utmost importance.

The borough engineer of Middlesbrough (Mr. S. E. Burgess) has prepared a scheme for converting the old police station into a maternity centre.

Ash, elm, and oak, whether unwrought, hewn, or sawn, have been added to the list of articles whose export has been prohibited in Sweden.

Sanction has been granted to the county council of Cambridgeshire to borrowing £647 for additional expenditure in connection with the new county hall at Cambridge.

South Shields Corporation has decided, after the war, to proceed with the erection of a new hospital for infectious diseases. The proposed site covers twenty-eight acres, and lies north-east of Cledon Village. The plans have been prepared by the borough engineer (Mr. L. Rosevear), and there will be accommodation for 124 beds for infectious disease, and 66 beds for tuberculosis cases.



## Our Office Table.

An exhibition of recent portrait drawings by Mr. Will Rotherstein was opened on Wednesday, May 24, at the Leicester Galleries, Leicester Square. In the collection are three new portraits for which Mr. Thomas Hardy has given sittings, besides drawings of Max Beerbohm, Robert Bridges (Poet Laureate), the late Rev. Stopford Brooke, Joseph Conrad, Lady Conard, Sir Edward Elgar, John Galsworthy, Edmund Gosse, Sir Ian Hamilton, Augustus John, Sir Henry Newbolt, Colonel A. Court Repington (the *Times* military correspondent), Sir Rabindranath Tagore, H. G. Wells, W. B. Yeats, Emile Van der Velde, and many others.

Mr. Herbert Percy Horne, the well-known architect, art writer, and connoisseur, whose death, at his residence in Florence, at the age of fifty-two, was recorded in our issue of the 26th ult., has left to the Italian Government, says a Reuter telegram from Florence, the beautiful Renaissance Palace at the corner of the Via dei Benci and Via dei Fossi, Florence, which he acquired and restored, together with the large collection of furniture, pictures, china, majolica, bronzes, and designs contained in the Palace, and has willed all his patrimony in Florence, and the reversion of his English property after the death of the testator's brothers, for the upkeep of the Palace and the collection, which is to be called the Horne Museum. A catalogue is being prepared of the collection and a valuation made in order that the succession duty may be paid by the Italian to the English Government. One of the principal buildings carried out from Mr. H. P. Horne's designs was the basilican Church of the Redeemer in a disused burial-ground in Bayswater Road, which is the more notable from having been decorated in fresco by the late Mr. Wentworth Shields.

Mr. Thomas A. Mawson calls attention in the *Times* to the splendid opportunity now offered for the replanning of the Sackville Street area in Dublin prior to reconstruction. Some six months ago a competition for the town planning of Dublin was invited, and the schemes sent in by competing architects are at the present time awaiting the decision of a committee of assessors. Mr. Mawson urges that means should be taken, by legislation if necessary, to prevent individual action which will tend to destroy the present opportunity, and all building operations other than those of a very temporary nature should be postponed until this competition is decided and the plans are adapted to existing conditions. Surely Dublin will not be permitted to follow the lamentable examples of failure to grasp the opportunities for remodelling a city's thoroughfares which occurred in the City of London after the Great Fire in 1666 and in San Francisco in April, 1906.

"One of the Competitors" writes endorsing Mr. Mawson's suggestion that the competitors in the Dublin town plan should now have their work adjudged. He adds:—"As one of these competitors, I rather resent having the labour, report, and drawings of many months' hard work indefinitely stowed away at Haddo House, with apparently no prospect of the promised award being delivered. There seems to be no excuse for postponement now that Dublin is crying to be rebuilt. The excellent suggestion has been made that the eight architects—they are partly English, partly Irish—who sent in final drawings and reports should be invited to meet together, that Lord Aberdeen's prize should be divided between them equally as a retainer for their services, and that their reports and drawings should be made public, and, if possible, issued in a form that may be of service for the building of the new Dublin. I believe all the competitors would agree to this; why can it not be done, and done now that the need is there? After all, here is the work of experts, men who presumably know their business, and have some contribution to make that may be of value at a time of crisis. Why can they not be listened to?"

In recognition of the long and valuable services they have rendered to the Birmingham Archaeological Society, Mr. J. A. Cossins and Mr. H. S. Pearson were presented with illuminated addresses at the Midland Institute on Thursday, and at the same time their portraits were handed over to the society. The presentations marked the close of official connection with the society in each case, Mr. Cossins having relinquished the presidency after holding it for eighteen years and Mr. Pearson the hon. secretaryship after holding the office for sixteen years. The presentations were made by the president, Mr. John Humphreys, who, in expressing appreciation of the work done by Mr. Cossins during his forty-two years' membership and by Mr. Pearson during his thirty-seven years' membership, said it was a shock to lose the two senior officers at once, and he felt it would be impossible to replace them. Mr. Cossins had devoted his leisure time to making sketches and plans of old churches and buildings in Warwickshire and adjoining counties, and Mr. Pearson had practically devoted his life to the service of the city.

A syndicate in Liverpool has purchased a block of old property, which, when demolished, will permit of the widening of Houghton Street, and such rectification of frontages in Clayton Square as will provide a site for a large picture palace, combined with a café, a row of shops, and a sheltering colonnade. A difficulty presented by the possibly inadequate width of the street at one point has been overcome, thanks to the tact and experience of the city engineer, Mr. John A. Brodie. By putting into operation the compulsory powers acquired since the former widening scheme for Vernon Street was abandoned, the Liverpool Corporation will be enabled, whenever they think fit, to provide access from Whitechapel and Victoria Street, via Sir Thomas Street, to Tithebarn Street. The narrow neck of Richmond Street, however, remains to be dealt with, but after the straightening and widening of Houghton Street and the consequently increased pressure of traffic on Clayton and Williamson Squares, the whole line of thoroughfare from Ranelagh Street to Tithebarn Street is expected to be dealt with in obedience to popular demand.

Mr. Thackeray Turner, F.R.I.B.A., chairman of committee of the Society for the Protection of Ancient Buildings, further explains in the *Times* his ideas for the protection of stained glass from bombs dropped by aircraft. He admits that from the direct action of splinters the only protection is to remove the glass and put it in a vault. But windows also run a risk of destruction from air pressure due to explosion at a distance, and he thinks a screen of three-quarters of an inch of rough boarding standing in front of the window would in many cases save the glass. Where there are buttresses on either side of a window, the boarding might be fixed on the face of them. In other cases, where the windows light the ground floor, the screen might be fixed to scaffold poles, and, obviously, if the expense of two thicknesses of boarding with an air-space between them were allowed, the protection would be still greater. In many cases the glass may be sufficiently far back from the face of the wall to be protected by fixing wood uprights against the wall on either side to carry the boarding. These expedients would reduce the risk of destruction at a comparatively slight cost, as contrasted with removal and storage of the glass.

The Midland Reafforesting Association, in their report for 1915, state that the replanting of Moorcroft has been completed, three school playgrounds and a churchyard have been planted, necessary repairs have been carried out, and an important change in organisation has been made in order that the association may be better able to cope with the heavy work that is sure to be thrown upon it at the return of peace. The trees planted at Moorcroft are doing fairly well, though there has been a rather heavy loss among the poplar and willow cuttings, and the second Government grant of £50 has been received. "Every day," the committee report, "tends to emphasise the dependence

of this country upon imported timber of all sorts, and it is impossible not to consider how different conditions, and possibly prices, might be, had systematic planting been general, or even if it had been limited to pit banks. It is just twenty-five years since the late Professor W. B. Fisher, to whom the association owes so much, first advocated the planting of South Staffordshire pit-mounds, and what a crop of stout young poles there would now be had he been taken at his word! The first plantations formed by the association are but eleven years old and those owned by it not more than eight or nine years old. Yet one of these has risen in value between 1909 and 1914 from £26 to £42, and in a few more years will have saleable timber."

An exhibition unique in character has been opened in the Pennsylvania Museum, in Memorial Hall, Fairmount Park, Philadelphia. Designated as the first of its kind in the world, it contains examples side by side of genuine and spurious objects of art. It is intended as an object-lesson and warning to art collectors, who are so often imposed on by unscrupulous dealers in the matter of imitation antiques. As indicative of the large scale on which this form of hoodwinking the public is carried on, there is the case of the art objects of Capo di Monti, made at Maili, near Naples, in the eighteenth century. There are only ten genuine specimens of this work in America, and five of these are at Memorial Hall. Yet nearly a thousand tons of fakes purporting to be originals have been sold in the United States. The imitations are shown with the real objects, which are valued at \$400 apiece. Imitation Hispano-Moresque plates, purporting to have been made in Spain in the sixteenth century, Chinese art objects worth \$1 and sold for \$100, are also on exhibition. Many of the fakes are made in Philadelphia; others come from London and Paris.

A Bill effecting a partial consolidation of the various bureaux which have heretofore had jurisdiction over the inspection of buildings in New York City, has now been passed. As usual, this new Metropolitan Building Act is a compromise, but although it will effect only a part of what it was at one time hoped would be accomplished, it will result in greater convenience to those connected with building operations in various capacities, and at the same time effect an economy in the supervision of building operations by the city. It is further expected to relieve owners and others from much annoyance, by reason of conflicting orders issued by various bureaux whose jurisdictions have heretofore frequently overlapped. Unfortunately, the architectural profession receives but scant consideration in the operation of the new law. The Board of Standards and Appeals, the body that will administer it, will be composed of thirteen members, only one of whom is necessarily an architect.

The German cement industry continues to labour under unfavourable conditions, and dividends are reduced or have been discontinued. The Portland Cement Company Saxonia, pays 3 per cent. dividend for 1915, against 4 per cent. for the previous year, and the report states that the sale was only 55 per cent. of the normal. The Alsen Portland Cement Company pays 4 per cent. for 1915, by using the balance carried forward from 1914, against 5 per cent. for the latter year. The Oppeln Portland Cement Company pays 4 per cent. for last year, against 6 per cent. for 1914.

The *Diario da Gazeta*, Lisbon, of May 5, publishes the text of a Bill to authorise the municipal authorities of Guimarães to contract a loan, up to 40,000 escudos (about £70,000) at current rate of exchange, to be devoted to certain public works, including the following: The installation of an electric tramway system between Braga and Guimarães; the construction of a workmen's quarter; the laying out of a park; the erection of a new municipal building; the supply of water to Guimarães and Vizela. Our "old ally," at any rate, is not staying down work, and British contractors idle here at home may have a look in.

## Engineering Notes.

**EAST INDIA DOCKS.**—These docks, constructed a century ago, and containing thirty-two acres of water, have just been modernised by the Port of London Authority. At the East India Import Dock, the entrance lock has been widened from 48 ft. to 80 ft., and the sill lowered from 24 ft. to 31 ft. below Trinity high water mark. In the Import Dock itself the water is now maintained at a level of 28 ft. On the north and east sides of the dock are newly erected spacious transit sheds, capable of receiving 20,000 tons of cargo. Railway connection with this part of the dock is under construction. Similar manifestations of activity are apparent in the Export Dock of the East India system, where the depth of water is now also maintained at 28 ft.

**SOUTH ALBERT DOCK.** The new deep water dock, which was begun in August, 1912, under a four years' contract, is making good progress. It will provide an enclosed deep water area of 65 acres, accessible to the largest ships. About 3,500,000 cubic yards of material had to be removed in order to ensure the desired depth of 38 ft. below impounded water level. This excavatory work is now almost finished, and the side walls and quays have been completed. The dock, which tapers in width from 700 ft. at the eastern end to 500 ft. at the western end, will have a total quayage of 10,000 lineal feet. Seven jetties will run parallel with the south quay of the dock. The entrance lock from the Thames has a length of 800 ft., a width of 100 ft., and a depth below Trinity high-water mark of 45 ft. Provision is made for linking up the new deep water dock with the Albert and Victoria Docks by a passage 100 ft. in width. The walls of the dry dock are well in hand. This dry dock is 750 ft. in length, with a width of 100 ft., or 20 ft. wider than any dry dock at present available in the Port. Provision is made for lengthening it if required. Messrs. S. Pearson and Sons, Limited, are the contractors.

## STATUES AND MEMORIALS.

**LIVERPOOL.**—On the Prince's Pierhead, facing the Mersey, there has been erected a memorial to the engine room heroes who have recently lost their lives at sea. The monument is the work of Sir W. Goscombe John, R.A., and takes the form of a massive rectangular base, from which rises an obelisk. On two sides of the base are groups of sculpture representing the different members of a staff; the figures in each group hold the characteristic tools of their office. Inscriptions, with appropriate wreaths and emblems, occupy the other two sides of the base. At the angles of the upper portion of the base are nude figures representing the elements Earth, Fire, Air, and Water. These figures support an ocean encircled globe, behind which rises a flaming sun. The obelisk is surmounted by a group of female figures symbolic of the sea, and by a gilded torch suggestive of the triumph of Fire, and commemorative of the services rendered by those who keep the lights burning. The whole of the monument, including the sculpture, is of grey granite. It is 48 ft. high, and surrounded by a raised border of grass 40 ft. in diameter, with a granite kerb.

Many happy returns to Sir Aston Webb, R.A., who was sixty-seven last Monday.

One of the picturesque early eighteenth-century houses in North Street, Westminster, was gutted by fire on Wednesday morning.

Mrs. Frank Adamson, widow of Frank Adamson, of Mead House, Ealing (of the firm of Adamson and Son, builders, Ealing and Putney), died on Friday last at 14, Marlborough Road, Ealing, in her eighty-fourth year.

The report of the directors of the Manchester Housing Company, Ltd. (conducted on the lines originated by the late Miss Octavia Hill), to be submitted to the sixth annual meeting of the company, states that the profit for the year is £377, an increase of £29 on that of the preceding year. With the balance brought forward from last year of £242 the total sum to the credit of profit and loss account stands, therefore, at £620. The directors recommend a dividend of 4 per cent. less tax. Since the last report a further 125 shares have been taken up, and there are still 3,153 shares unallotted.

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Ellingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

Drawings of selected competition designs, important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc., we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

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Advertisements for the current week must reach the office not later than 3 p.m. on Tuesday. Front-page advertisements and alterations or stop orders for serial advertisements must reach the office by first post on Monday to secure attention.

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MANAGER.—No.

CAFT. L. L. Thanks, yes.

SURVAYOR.—The charge seems reasonable.

LIGHT.—I shall advise without a survey of the premises and surroundings.

CINEMA.—Would take more space than we can spare. The problems of a circular are girder, such as that used for a theatre balcony, want careful solving. The best book is Gilson and Ritchie's, published by Constable and Co. We can send you a copy for 6s.

URGENT. PLEASE NOTE.—To prevent disappointment, owing to restricted and later postal deliveries, it is not safe to wait till Tuesday morning to send us advertisements for the current week's issue. Many reach us after 3 p.m., at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order THE BUILDING NEWS regularly of their newsgate or bookstall. With the present shortage of paper and probable still further rise in its price, it is futile to expect a newsgate to saddle himself or us with surplus unsold copies to oblige chance customers, on which, moreover, he or we have to pay heavy and increasing carriage charges.

The death is announced of Mr. William Mace, master builder, of North Walsham, aged 61 years.

Mr. Ernest Doewra, of Balls Pond, Islington, N., and Watford, Herts, contractor, left personally amounting to £80,395.

At the meeting of the City Corporation on Thursday the death was reported of Mr. E. Cripps, clerk of works in the engineer's office.

The death is announced, in his ninetieth year, of Mr. David Houghton, for thirty-six years surveyor and sanitary inspector to the urban district council of Barton-on-Humber.

Mr. Fred Hatcher, assistant to the Neath borough surveyor, has been appointed surveyor and inspector of nuisances to the Porthcawl Urban District Council.

The Ministry of Munitions has granted permission to the War Seal Foundation to begin building on the site of the first block of War Seal Mansions for disabled soldiers in Fulham.

Mr. E. Gill, surveyor to the Mirfield Urban District Council, has been granted £75 in recognition of his services in connection with the extension of tanks and other work at the sewage farm.

Mr. F. Clayton, surveyor and inspector to the Luddenden Foot Urban District Council, has been presented by the members with a wedding gift consisting of a French clock in an English mahogany case.

At Knottingsley yesterday (Tuesday) Mr. H. A. Chapman, an inspector under the Local Government Board, held an inquiry as to an application from the urban district council for sanction to borrow the sum of £5,083 for housing operations.

At a meeting of Dundee District Committee held on Friday, Mr. William Wyllie was appointed road surveyor in succession to the late Mr. J. B. Robertson. Mr. Wyllie, who is thirty-two years of age, is at present surveyor for the Easter Ross district.

The Government of Bombay Presidency have issued a resolution sanctioning the Bombay Improvement Trust's scheme for widening central and northern Parel Road, which has been the subject of much controversy between the Improvement Trust and the Municipal Corporation.

Mr. J. A. Andrews, surveyor of highways under the Skirlaugh Rural District Council, has been promoted to the position of lieutenant officer commanding a sanitary section of the 2nd London.

At Cardiff Mr. A. G. Drury, an inspector under the Local Government Board, has held an inquiry as to an application from the city council for sanction to borrow £3,500 for works of sewerage. The town clerk explained that it was the intention of the corporation to construct a sewer from Borstal Avenue, Heath, to Fair-oak Road, Roath Park, through the cemetery, in order to drain the cemetery and the newly-built-upon area on the Heath estate.

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Whiteley House, Barnhill, E. .. .. .	Elevations, plans, and block plan, shown in section. Mr. Ernest Newton, A.R.A., F.R.I.B.A., Architect.
The Sanders Estate, Denmark Hill, S.W. ..	Elevations, plans, and block plan, shown in section. Mr. Ernest Newton, A.R.A., F.R.I.B.A., Architect.
Institute and Sunday-school, St. George's Road, Congregational Church, Bolton, W. .. ..	Plans, and section. Messrs. Ormrod, Pomeroy, and Foy, Architects.
War Seal Mansions, Fulham, S.W. .. ..	Elevations, plans, etc. Messrs. Joseph and Smithson, Architects.

## Currente Calamo.

We are sorry that Sir Lionel Earle's well-urged pleas with the Lords, on behalf of the Office of Works, to delay the "strengthening" of the obstructive Charing Cross Railway Bridge were futile. For a while longer, we suppose, ugliness—still uglier—will continue to mar the Thames and mock those who value the beauty of the river, and the S.E. and C. Railway Company will fling away more money in the vain attempt to avoid the inevitable. For every necessity points to the certainty that Charing Cross Station must and will in the near future be removed to the other side of the river, and that a public bridge worthy of the capital will replace the present eyesore, and afford the much-needed facilities for public traffic. Many of its shareholders, and we suspect most of its present directors, if they cared to tell the truth, are quite aware of the great mistake from every point of view that was made when the station was brought to Charing Cross, with its dire results of delayed traffic and frequent obstructions. It would have been the truest charity on the part of the Lords to have been cruel to be kind, and hastened the necessity to build the new station on a site adequate to present requirements. The site value of the present station will probably provide ample funds.

The *Westminster Gazette*—one of its most persistent advocates—has discovered that "the unexpected has revealed itself in regard to the Daylight Saving Act." We adopted "Summer Time" to save gas and coal—which we are *not* doing, "but, on the other hand, much more petrol is being consumed." Motor-car owners, in defiance of the pathetic poster appeals, are able to go for much more extended evening pleasure trips before lighting restrictions render driving uncomfortable, and consequently much more petrol is being consumed. "Government," says our contemporary, "will have to take action to resist the use of petrol rather than face the consequences of a temporary exhaustion." Very likely. Crude and flighty legislation is always followed by a series of after-claps of official interference to stave off results that were apparent to all but faddists smitten with the blindness that is common to all nostrum-mongers.

The contrast between the increasing slackness of the necessary services of the Metropolitan Borough Councils and those of the London County Council, which has lost far more men by reason of the war, is prompting many inquiries whether any useful purpose is likely to be served by their longer continuance, unless it be the glorification of the mayors and aldermen and councillors whose fussy activities are sometimes ludicrous. There is not a metropolitan borough in which the performance of the work of scavenging, street watering, and refuse removal can bear an instant's comparison, even in ordinary times, with the promptness and regularity with which it is executed in the City of London. Recently, with the cessation of street watering, the contrast at the boundaries of the City with the boroughs has been most marked. The City has clean streets and a dust-free atmosphere. Elsewhere, in the residential districts, the fresh foliage is already covered with dust. In one borough last week the dust was swept up into heaps on some of the roads which are to be tar-sprayed. The wind blew the dry dust all over the road and into the houses before the tar-sprayers got near it. In the poorer streets the fetid dust-bins are already adding to the provocations of disease. Rates show no diminution, though the workhouses were never so empty. As regards street watering, the plea that there are no drivers is an absurd one. It is a slack job at any time, and women could sit on a slow-moving tank and turn the spray on and off as easily as men, if the older men are too lazy, or too well off just now.

In our mention last week of the successful employment for road-making of the B.R.C. Fabric, a speciality of the British Reinforced Concrete Company, of 1, Dickinson Street, Manchester, and 20, Victoria Street, Westminster, we said nothing about its equally advantageous use for floor slab and reinforcement. That has long been known to many readers, as the long list of over a hundred and fifty important contracts where it has been applied, which will be found in the May issue of "Floor Slab Reinforcement" just issued, testifies. Especially should the results of an important test be read. This details a rigid examination conducted at

Halifax to comply with the local building regulations. The space between girders was 8 ft. 9 in., the concrete 6 in. thick, the B.R.C. reinforcement used being Fabric No. 8. The load was 6 cwt. per square ft. This was carried with a temporary deflection of 1-50th of an inch, and permanent deflection nil. That is to say, the elastic limit of B.R.C. Fabric allowed the floor slab to be loaded with three times the tabular load without any permanent deflection. Some equally valuable details will be found in an illustrated description by Mr. Richard Holt, A.A., a Liverpool architect, of his experience in connection with the Liverpool Council School, views of which are given, and of the Liverpool Town Hall. Another good example is a well-designed loggia at Walhampton House, Lymington, of which Mr. G. M. Horden is the architect, the roofing of which is constructed of concrete reinforced with the B.R.C. Fabric.

Columbia University has inaugurated a notable experiment in co-operation between the teaching and the practice of architecture. On the assumption that nothing but good could accrue to both school and profession through a proper understanding and reciprocal appreciation of one another's provinces, the University authorities decided to invite three architectural societies of New York City to elect three practising architects each, to form a committee of visitors, whose advice, as based upon periodic inspections of the school's plant or equipment, current work, and mode of teaching, could be depended upon as a guide in checking up scholastic results by professional standards and demands. The three societies and the elected members from each to compose this committee are the following:—From the New York Chapter of the American Institute of Architects, Bertram G. Goodhue, Charles A. Platt, and Egerton Swartwout; from the Society of Beaux Arts Architects, Thomas Hastings, Henry F. Hornbostel, and Lloyd Warren; from the Alumni Association of the School of Architecture of Columbia, Goodhue Livingston, John Russell Pope, and L. N. Phelps Stokes.

The committee has already begun upon its duties, and has on several occasions

inspected the current output at Avery Hall. A schedule has been arranged on the basis of which three members of the committee, one from each of the groups mentioned, will be invited to attend each of the judgments of work in design held during the year. Since about ten judgments are held at Columbia in the course of one academic year, this will offer a number of opportunities for each of the nine members of the committee to be present. On the occasions of each judgment the visiting members are also requested to attend classes, representative collateral work in the various branches is exhibited, all of the teaching staff are on hand to explain the method of teaching in their respective departments, and an instructor is deputed to act as academic cicerone for the day. Columbia deserves credit for its initiative in thus accepting the professional world in a definite physical sense as its pacemaker. In selecting architects to be members of the committee of visitors the three participating architectural bodies have set their standard high. The committee of visitors will not attempt to govern, but to advise. The technicalities of administrative control will remain as heretofore in the hands of the Administrative Board. On the other hand, the committee will call into play its hard-bought experience, its knowledge of the fundamental demands of practice, as well as its cherished ideals of a great art ingrained through many qualitative tests, so that the scholastic intention may be brought to a full grasp of the objective of professional practice. Beyond the appointment of a practising architect as director—virtually nominal, so far as his definite administrative function is concerned—for the giving of a few lectures annually by men busy in the profession, the experiment at Columbia is, so far as we know, the first decisive step in the direction of *de facto* co-operation between a school of architecture and the profession at large.

#### THE WAR SEAL FOUNDATION MANSIONS.

The value of the initiative Mr. Oswald Stoll has taken in this matter cannot be over-estimated. It is as patent to everybody as the daily growing need it is intended to meet. The object of the War Seal Foundation is to erect specially designed dwellings in appropriate centres, composed of flats wherein the disabled service man can live with his family on his pension, with his medical and physical needs provided for on the spot, *without any appeal to charity*.

The flats will be let to eligible cases at nominal rents, inclusive not only of rates, taxes, etc., but also of medical and physical care appropriate to every case, including baths of all kinds in a separate wing, whereby sufferings may be alleviated and life made tolerable and even happy.

Mr. Oswald Stoll has given a site for the first block of flats, to be named War Seal Mansions. The forty-eight flats and supplementary buildings comprised in War Seal Mansions are estimated to cost £20,000 to build. They will each be let at a rental of 6s. 6d. per week to disabled Service men with families, and this rental will include all benefits. It is not intended to make a profit. The revenue from the rents is designed to meet the expenses of

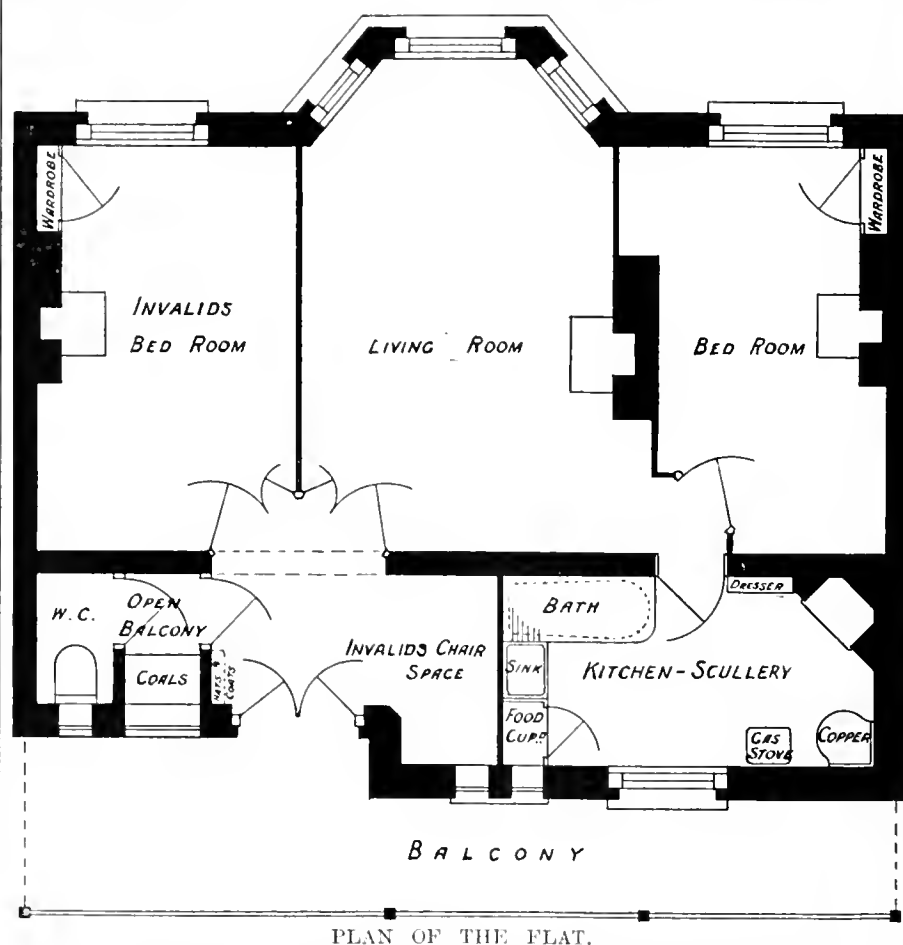
upkeep as estimated in the following statement:—

Receipts—	£	s.	d.	£	s.	d.
	per annum					
48 Self-contained flats at 6s. 6d. per week...	15	12	0	811	4	0
<b>Expenditure—</b>						
Rates 48 do. at 9s. in the £ on £432 rateable value	183	12	0			
Water rate at 1s. 6d. per cent. on £432	21	12	0			
Gas	50	0	0			
Insurance 1s. 6d. per cent. on £18,000	13	10	0			
Lift running	75	0	0			
Boiler room, coal and coke	30	0	0			
Repairs at 2nd year 10 per cent. on rentals	81	0	0			
	454	14	0			
Resident medical department	200	0	0			
Lift attendant, etc.	65	0	0			
				719	14	0
Showing a balance for contingencies				£91	10	0

pathisers with the movement will render valuable help by purchasing the seals for re-sale amongst their friends and others. We hope they will; it is, to our thinking, an improvement on the street selling of flags and badges, of which, perhaps, some of us are a little tired.

Any one can constitute himself or herself an agent of the War Seal Foundation, and make regular collections from the family, friends, acquaintances, tradesmen, etc., for the purchase of War Seals, and really be doing "something practical" for our disabled heroes, or you can arrange concerts, entertainments, etc., in aid. The Foundation will always be pleased to arrange for one of its secretaries to be present to explain the scheme.

Well-to-do people can also give dedicated flats. The estimated cost per flat and its share of supplementary buildings is £400, and donors of that sum may name a flat or dedicate a flat to the memory of one near and dear to them. Surely there can be no better or nobler memorial! An inscribed tablet will be



The necessary money for the erection of War Seal Mansions is being raised by the sale of ½d. War Seals, of simple design, and likely hereafter to be treasured as memorials of this trying but heroic time. Approximately 3,500,000,000 letters, as distinct from postcards and parcels, pass through the Post Office during the course of a year. If each letter was sealed with a ½d. War Seal, over £7,000,000 would be available for the provision of War Seal Mansions, in all parts of the country; when one thinks of the thousands of disabled men we now and shall have in our midst, it is a question if £7,000,000 would be sufficient to meet the need for the benefits it is the object of the War Seal Foundation to provide for them. The War Seals may be obtained in any quantity from Mr. Chester Fox, the War Seal Foundation, Coliseum Buildings, St. Martin's Lane, London, W.C., and sym-

affixed to each flat so dedicated. A dedicated flat provides a very fitting and lasting memorial of those honourably fallen in the war. Mrs. Florence Bell, dedicating a flat "To the sweet memory of the martyred Nurse Cavell," stated that "The idea appealed to her chiefly because it is practical and intended to bring help and comfort to those who have fought the good fight, and now must suffer all their lives owing to their loyalty to their King and country." Mr. Joseph Bell wrote as follows:—"I heartily endorse my wife's happy idea of giving the cost of a flat and dedicating it to the memory of some noble life, and I shall be delighted to supplement it by giving a further flat. So far, none of our relatives or friends who are fighting at the Front have fallen, and I should like to render my gift as a thankoffering that, so far, they have been mercifully spared,

and I should be pleased if this particular soldiers' home could be associated with the name of that great man who has been raised up in our defence, Lord Kitchener.

given will indicate the excellent arrangements contemplated:—

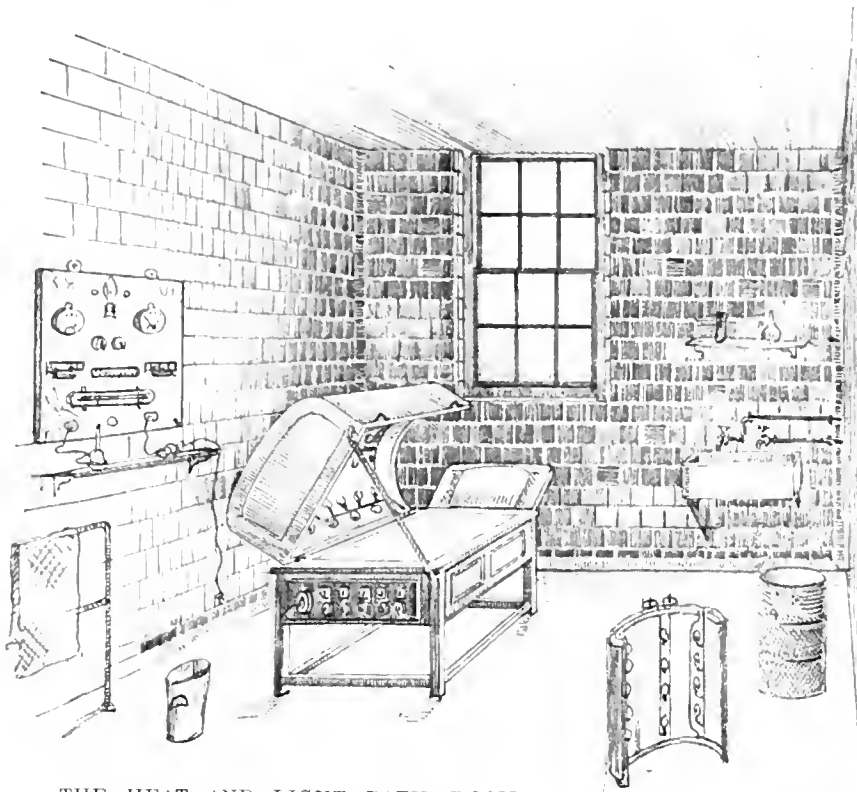
The plan of the flat shows arrangement of the rooms. The invalid's chair will

tenants suffering from rheumatism, stiffness of the joints, and chronic exudation. The light bath will deal also with rheumatic cases, as well as for various heart troubles. Faradism and galvanic treatment will both be obtainable, the former to stimulate the nerves in cases of paralysis, the latter for sciatica and neuritis, and to promote nutrition of wasted muscles caused by paralysis.

Massage will be administered to prevent further wasting of paralysed limbs, and, in the case of a patient unable to walk, to bring nutrition to the muscles, maintain their circulation, and keep them in better state of health generally. Similarly with nerve cases. There will also be a sulphur bath room.

The kitchen-scuttery is designed to contain all the necessary requirements in limited space: a large food cupboard, a sink fitted with hot and cold water pipes, a bath of white enamel with hot and cold water supply and covered by a table top fixed to the wall. This, when dropped, gives large table space, as well as ample dresser accommodation. In addition to the usual kitchen grate, there is a fitted gas-stove with all the latest improvements and a copper for washing purposes.

The residents' entertainment room, shown on next page, will be situated in the centre of the administrative block, and will be accessible under shelter from every flat. Every resident will be free to use the room. The balconies, passages and lift are constructed to enable the totally disabled to be taken there without discomfort. Chamber music, concerts, and popular entertainments will be arranged.



THE HEAT AND LIGHT BATH ROOM.

If he does not object, I would like it named 'The Kitchener Home.' Miss Annie Watson writes:—"The letters from Mr. and Mrs. Bell and Mr. Stoll suggest a scheme that directly appeals to my sympathies, and will, I am sure, greatly assist in promoting the aims and objects of the War Seal Foundation, and help in a small way to show the appreciation we all feel towards the brave heroes who have done, and are doing, so much for us at home. At the same time, it will also form a fitting memorial to those who have already given their lives. I shall, therefore, have much pleasure in providing the necessary amount, £400, for one flat, which I desire to dedicate to that man amongst men, Lord Roberts." Several flats have been subscribed for in this way, but the need for hundreds more is urgent, great, and growing, and it is earnestly hoped that readers who can will give the question of naming or dedicating one, or perhaps more, of these flats their serious consideration. Mr. Mason Emmerson, the secretary to the dedicatory section, will be only too pleased to call upon any interested lady or gentleman addressing a note to him at the War Seal Foundation, Coliseum Buildings, St. Martin's Lane, London, W.C. If every club in the land would take upon itself the collection of £400 by the sale of War Seals, every club would place on record on the dedication tablet of one of the flats a thankoffering, a tribute, an appreciation of those of its members who answered the call of the nation in the national extremity. If every church, chapel, theatre, college, school, institution, business house, firm, factory, military and naval unit, regiment, and ship, newspaper, and railway would do the like, the housing problem of the disabled service man would be solved.

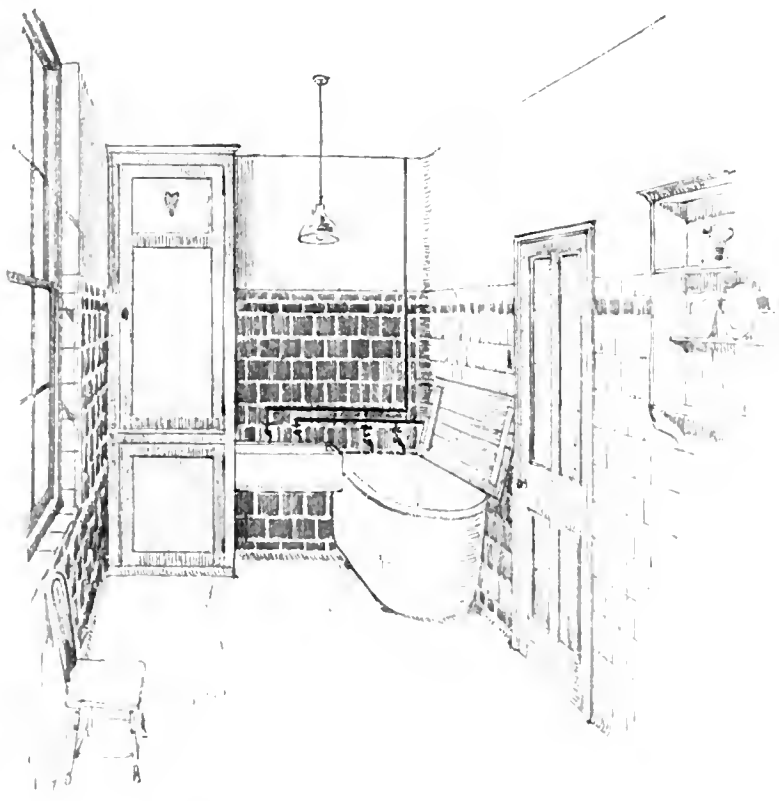
The architects of the War Seal Foundation Homes are Messrs. Joseph and Smithem, and the elevations and plans

have a corner for itself, and can be wheeled into the invalid's room or the living-room or on to the balcony, as required, the doors being made sufficiently wide. Each bedroom contains a cupboard wardrobe; each flat has its own bath and lavatory.

Heat baths will be at the disposal of

#### WATER COLOURS AT THE CAMERA CLUB.

An exhibition of water-colour drawings by E. T. Holding is on view at the Camera Club, 17, John Street, Adelphi, W.C. Mr. Holding is well known as an expert photographer who has frequently exhibited on the club walls and in Russell Square



A Kitchen-Scuttery



and Pall Mall East works in platinum and other direct processes, but he has now abandoned the camera for the palette, having removed from London to Pulborough, and has evidently a promising future before him. About thirty water-colours and three or four works in oils, all free transcripts of English landscape scenery, are hung. A broad treatment with a full brush, an extensive gamut of colour and a fine regard for atmospheric effects are adopted by the artist, with excellent results. One of the finest works shown is No. 13, "October," a wide expanse of low chalk hills intersected by a shallow valley, in which the umbers, browns, and greens of the autumnal foliage contrast admirably with the dense masses of purple heather; overhead a break in the gathering cumuli reveals a patch of blue sky completing the colour harmony. "The Valley Farm,"

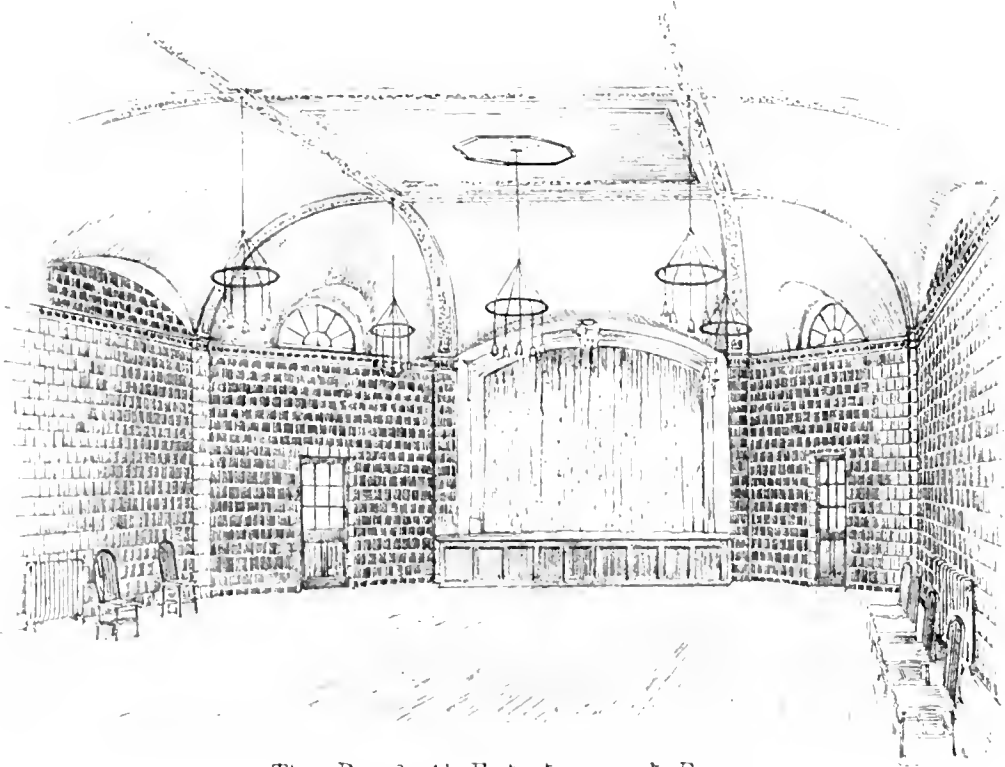
open, sandy country is demonstrated in No. 23, "Fields in Essex." "Hampshire," No. 16, is one of several felicitous renderings of broad stretches of fields and meadows viewed from a considerable height. The varied effects produced by gleaming chalk pits and quarries in the sides of steep ascents clothed with trees are depicted in Nos. 8, 22, and 26. "Exeter from the Canal," No. 28, is an attractive work; over a bend in the water are some cottages overhung by elms, and overhead are seen silhouetted the low outlines of the choir roof and sturdy north transeptal tower of the cathedral. No. 29, near by, "Morning Haze," is a riverside sketch with the austere lines of a castle and church steeple giving character to the placid scene; another work of this type also treated in a low key of colour is No. 32, "A Suffolk Estuary," apparently that of the Alde at Orfordness.

## WALL PLASTER AND GYPSUM PRODUCTS.

Gypsum, the material used so extensively at the present time in building construction, chiefly for wall plaster, was the main subject of a paper on "Plaster and Gypsum Products," delivered by S. G. Webb, secretary of the Gypsum Industries Association, Inc., before the New York State Builders' Supply Association. Mr. Webb's paper deals with gypsum, its occurrence, its composition, its manufacture, its uses, and some of its products.

To begin with, gypsum is one of the oldest known building materials, and is found as the material on which mural decorations were placed in the tombs of the Caliphs in Egypt, erected over 4,000 years ago, and to-day, in the Pyramids of Egypt, it is found in the form of plastering on the surfaces of walls in the interior chambers, as solid as the stone upon which it is placed.

Gypsum is the geological name for hydrated sulphate of lime, and is composed of lime in



The Residents Entertainment Room

THE WAR SEAL FOUNDATION MANSIONS. (See pp. 520-1 ante.)

No. 14, which hangs below to the left, is very diverse in subject and treatment from Constable's masterpiece at Trafalgar Square; ensconced among elms and ashes with a semi-circle of low hills as a background is a group of grey farm buildings. No. 1, "King's Tor on Dartmoor," is of a class recently popularised to triteness at exhibitions; the curtain of rain-cloud which enfames the outcrop of granite seems to lack finish. Agreeable sketches on the placid Norfolk Broad are Nos. 9 and 15, "Stalham" and "Near Coltishall." A difficult and very different class of subject is successfully grappled with in "St. Peter's Square, Manchester," No. 7—grim and grey warehouses, with a commemorative cross on the site of the former church in the centre of the open place, seen by early morning light. Three clever sketches of the undulating and well-wooded Dartmoor district are those numbered 5, 11, and 30, and a grand expanse of the Sussex Downs and vales as viewed from a hillside under a stormy sky is hinted in No. 20, "April in Sussex." What can be done with ragged lines of

Of the works in oil, all idealised Sussex landscapes, we give the preference to "Near Michelham," No. 33, in which we look across a meadow to a small stream purling beneath a steep hillside. The exhibition remains open until June 24.

Bricklayers, masons, and engine-drivers are required for the Artisan Works Company, Royal Engineers. Men can only be accepted for this company who are between the ages of 41 and 50.

In order to meet the objections of the Dumfriesshire County Council to the pollution of the River Esk, the Langholm Town Council recently prepared a modified scheme of sewage purification, but this has been rejected by the county council as not being in conformity with the views of the Royal Commission. It is estimated that a complete sewage disposal scheme for the burgh would cost £10,000.

The annual meeting of the Society of Scottish Artists was held in the North British Station Hotel, Edinburgh, on Wednesday afternoon. Mr. Robert Home, president, in the chair. The report was adopted. Sir John Stirling Maxwell, Bart., was re-elected hon. president. Mr. Robert Home was re-elected president, and Mr. Robert H. Christie, S.S.C., 4, Castle Terrace, Edinburgh, secretary.

chemical combination with sulphur radical and water, the water being in the form of water of crystallisation. It is found quite lavishly distributed over the earth's surface and occurs as rock, which is either in the form of veins below the ground or in masses near the earth's surface covered with only a thin layer of soil.

In the United States it is found in twenty-three States, including Alaska. The total amount mined in these States during 1914 was 2,476,465 tons. A part of this production of gypsum, amounting to 443,687 tons, was used without calcining as an ingredient for Portland cement, in paint and as land plaster. The remainder of the output was calcined and sold in the form of wall plaster or manufactured into gypsum blocks, gypsum plaster boards and other structural forms.

## PRODUCTION OF GYPSUM.

In the production of gypsum, New York State produced the largest quantity, Iowa ranking second, and Michigan third, and, therefore, the building supply dealers of New York State are peculiarly interested in this material for the reason that not only is it produced in the State of New York, but is produced in larger quantities in this State than in any other part of the United States.



In addition to the gypsum produced in the United States, a considerable tonnage was mined in Nova Scotia and New Brunswick and shipped to calcining mills located on the Atlantic seaboard at New York, Newark, N.J., Newburgh, N.Y., and Chester, Pa. The quantity so imported from Canada amounted in the year of 1914 to 369,214 tons, making a total of material manufactured and used in the United States of 2,845,679 tons.

It will be noticed, therefore, that not only does the State of New York produce the largest amount of the domestic production of gypsum, but it also uses up the greater part of the gypsum imported from Canada in the eastern mills.

#### CHEMICAL CONVERSION.

The gypsum to be converted into plaster and manufactured articles, such as gypsum block, gypsum board, etc., has to be calcined into plaster of Paris. This is effected by crushing the gypsum rock and then grinding it to a very fine powder and placing this powder in what are known as kettles and subjecting the material in these kettles to external heat. In this way some of the water of hydration is liberated, which is approximately 14 per cent., leaving about 7 per cent. of water of hydration still remaining in the material.

The gypsum is thus converted into plaster of Paris, and this plaster of Paris is mixed in mills with ingredients such as wood fibre, sand, hair, retarder, asbestos fibre, or combinations of these materials, to form wall plaster. In the case of neat gypsum wall plaster, the sand is omitted. Such plaster is known as neat gypsum plaster, and when the plasters are ready for use they are known as ready mixed gypsum wall plasters.

It may be well to consider the qualifications of gypsum wall plasters, which have been responsible for the very great and rapid growth of the use of gypsum or hard wall plasters, as illustrated by the fact that the gypsum mined in the United States has grown from 90,000 short tons in 1880 to 2,476,465 short tons in 1914. Gypsum plasters must, therefore, possess distinctive merits to bring about such a wonderful increase in their use.

#### QUALITIES.

I will mention some of these qualifications, not necessarily in the order of their importance, as follows:

First—Hardness: Plaster of Paris is a hydraulic cement which resumes the form of gypsum or hydrated sulphate of lime when water is added to it. It thus "sets" or becomes hard, and is so hard that it will withstand a breaking pull of 100 or more pounds per square inch, and this qualification of hardness acts as a valuable means of stiffening or strengthening the building in which it is used, particularly in the case of frame buildings.

Second—Sanitation: It is sanitary because of its very hardness, this hardness being throughout the entire mass of plaster, the hydraulic or setting qualities of the plaster occurring throughout its entire mass. This gives a wall surface in which injurious disease germs or objectionable insects cannot find lodgment, and it also offers an impediment through which larger vermin find it impossible to make holes.

Third—Durability: I have mentioned the fact that gypsum plaster is found to-day in perfect and hard condition as the covering of many of the walls of the chambers of the Pyramids in Egypt, and that it has been there for upwards of 4,000 years. Under the city of Paris, France, gypsum is found in large quantities, and has been used there for plastering and structural purposes for hundreds of years—the name of plaster of Paris being derived from this fact. This qualification, therefore, of durability of gypsum wall plasters means that they resist wear and tear in a building very efficiently.

Fourth—Quick Setting and Quick Drying: Gypsum wall plasters can be used during any time of the year, and will set and become hard and dry out very quickly, so that the owner can have the use of his building in the least possible time. He can also proceed with his painting and decorations with

very little, if any, misgiving that these will be injured by too early application.

Fifth—Convenience in Handling. The fact that gypsum plasters are usually marketed packed in bags in the ready-mixed form, necessitating only the plaster being mixed with water at the building, enables the dealer and the builder to handle in convenient packages only the exact amount of material that is required, and in a minimum amount of space in the building. This great convenience in handling and using has been a considerable factor in increasing the popularity of gypsum hard wall plasters, and is a very good and real reason why the dealer can handle the ready-mixed gypsum wall plasters to considerable advantage.

This is a brief outline of some of the principal advantageous qualifications which gypsum wall plasters possess, about which there is no real dispute.

#### CORROSION OF METALS.

I desire to refer at this time to one question that is frequently raised as an objection to the use of gypsum plasters, and that is the assumption that gypsum tends to corrode metal. Gypsum is a neutral salt—that is, neither acid nor alkaline—and, therefore, cannot be corrosive when in contact with steel or iron. This statement has been amply demonstrated by experience—namely, that in the absence of damp conditions there is no corrosion of the metal when in contact with gypsum plaster. In the earlier days of gypsum plaster manufacture, however, it was the practice to use some acids as retarding agents, and it was because this acid, in conjunction with damp conditions, in some cases caused corrosion that there grew a certain amount of prejudice against gypsum in this connection. The bugbear, therefore, of corrosion may be properly dismissed. When corrosion occurs on metal which is surrounded by gypsum plaster it is generally found that damp conditions would bring about corrosion of the metal in any event, and whether Portland cement or lime was the plastering material used instead of gypsum. Such cases are due to the oxidation of the iron from the combination of dampness and oxygen gaining access to the metal, and are not caused by anything in the gypsum.

#### IS GYPSUM "NOISY"?

Another question which is frequently raised as an objection to the use of gypsum plaster is that it is "noisy." The fact is that gypsum plaster is no more "noisy" than any other plastering material. I recall very well making an examination of the New England Conservatory of Music in Boston, the walls between the class rooms of which were constructed of double gypsum blocks, separated by an inch space, in which was hung a sheet of Cabot's seaweed quilt. The outside faces of the walls forming the interior faces of the walls of the rooms were plastered with gypsum hard plaster. In the earlier use of this building a great deal of complaint had been made about the noisiness of these rooms by the professors conducting the musical classes, until some bright person was able to draw a distinction between echoed sound and transmitted sound. They then placed rugs on the floors, draperies at the windows, and tapestries on the wall, and this reverberated sound ceased to exist; and then it was that they found that no sound whatever passed through the walls from room to room. In the designing of buildings it is frequently found that there are pipes, air ducts, or openings permitting sound to pass from room to room or from floor to floor, and when such sounds are noticed, immediately the gypsum plastered walls, which are what are seen in the room, are blamed for the noise, and gypsum plaster is said to be "noisy."

I recall another case where the owner of a two-story brick business building in a small town in Ohio improved one of the two stores on the street level and then rented it as a drug store. He put tile on the floors, covered the walls with cases with glass fronts, and put a metal ceiling over the existing plastered ceiling. After he had done all this he found that the words spoken in ordinary tones in the store were clearly heard in the Masonic Hall immediately above this room and vice versa, and so bad was this condition that the

Masonic lodge contemplated cancelling its lease. The other store on the street level was a clothing store, which he did not improve. It had wooden floors and plaster ceilings, and clothing was exhibited throughout the store. Now notice the difference. No word spoken in that room could be heard in the hall above, which was occupied as a Knights of Pythias lodgeroom, and neither could any word spoken in the Knights of Pythias' room be heard in the clothing store beneath. In considering this question of sound, therefore, it is necessary to be acquainted with the conditions and find out whether there are other conditions responsible for the sound trouble. You will find that invariably there are.

#### GYPSUM PRODUCTS.

I see that the subject assigned to me includes gypsum products. I hope I may be pardoned, therefore, if I say a word or two about other gypsum materials that are or should be of considerable interest to the building material dealer. There is gypsum plaster board, the use of which is growing tremendously as its usefulness is recognised, and I question very much whether there is any dealer within hearing of my voice who does not at this present time find it to his advantage to sell plaster board.

In addition to the advantages there is from a business point of view in selling plaster boards, you are undoubtedly interested in the fact that plaster boards have a very real value in preventing the spread of fire. Many cases might be cited of fires that have occurred where the damage has been kept to a minimum because boards have been used as a lathing material. In selling plaster boards, therefore, you are helping the cause of fire prevention.

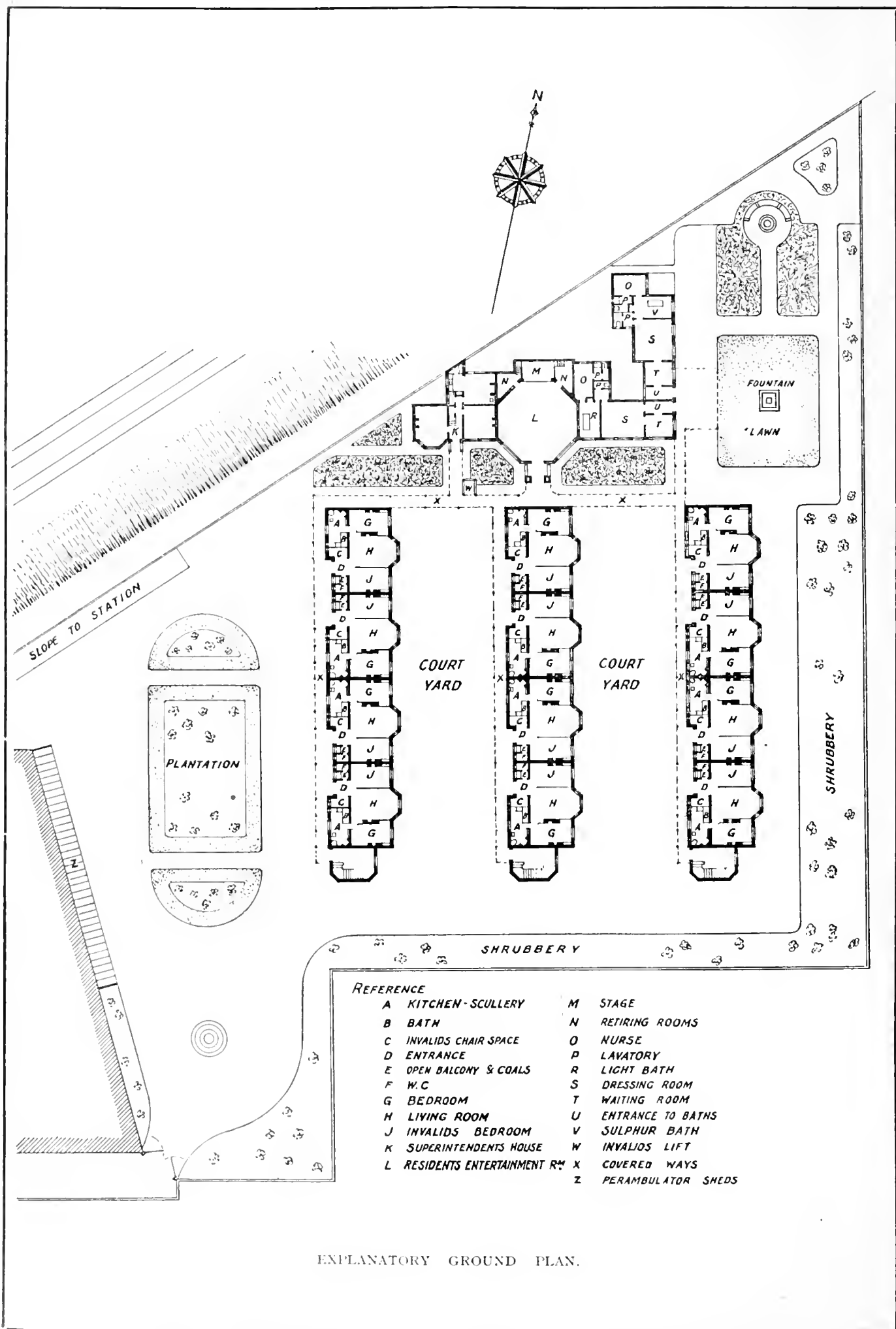
In recent years a very large growth has occurred in the use of gypsum plaster blocks, principally for the construction of partitions in the so-called "fireproof" type of buildings. Many tests have been conducted by the Underwriters' Laboratories and other institutions, which have demonstrated that gypsum block partitions have a very high efficiency in fire resistance, and so its growth has been rapid until to-day in the country at large probably sixty times as much gypsum plaster blocks are used as were used only eight years ago.

This growing appreciation of the value of gypsum plaster blocks is leading to recognition for the protection of important vertical openings in buildings, such as elevator shafts and for steel protection and, more recently, as book tile for roofs, placed between the steel frames or steel purlins of steel roofs. A very considerable area of structural floors are now being used made of gypsum in poured form reinforced by steel. In this connection, it will be interesting to you if I refer to what happened in Paris during the days of the Communism immediately following the Franco-Prussian War. As you know, efforts were made to burn Paris, but these efforts were futile, and it is a coincidence, if it cannot be proved to be directly the reason for this failure to burn up Paris, that 95 per cent. of the floors of buildings in Paris were, and are to-day, constructed of poured plaster of Paris; in other words, reinforced gypsum.

Mr. J. Bilsborough having resigned the post of docks superintendent, the Ribbles Committee of the Preston Corporation proposes to advertise for a successor at a salary of £500 a year.

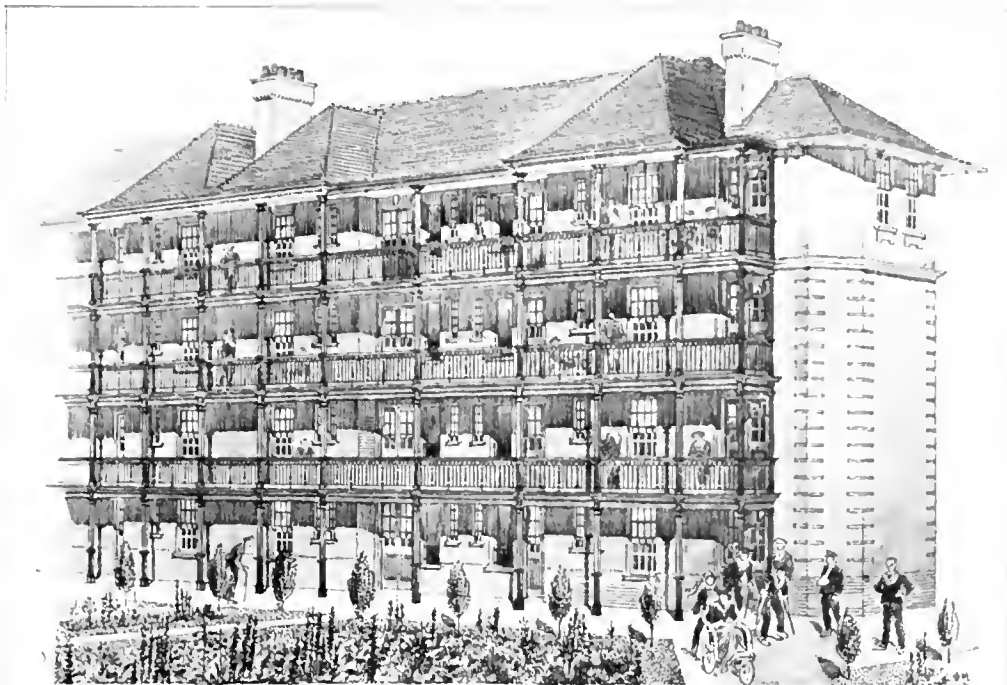
The new building of the Great Indian Peninsula Railway and other, which is still under process of construction at the rear of the Victoria terminus, Bombay, has been opened as a fully equipped war hospital for British troops, having a total accommodation of 500 beds.

On Tuesday week, at the Mart, Messrs. Daniel Smith, Oakley, and Garrard, of 45, Charles Street, St. James's Square, S.W., held, by order of the High Court, an auction sale of a freehold wharf and factory premises in Rotherhithe Street, S.E. The property was divided into two lots, but was first offered as a whole. The company present meant business from the commencement, and the offers quickly reached £5,750, at which sum the bidding paper was eventually signed by a well-known corn merchant.



WAR SEAL MANSIONS, FULHAM, S.W.: GROUND PLAN.

Messrs. JOSEPH and SMITHEM, Architects. (See page 520.)



A WING OF THE MANSIONS, SHOWING THE OPEN-AIR BALCONY ELEVATION.



A BIRD'S-EYE VIEW OF THE MANSIONS

WAR SEAL MANSIONS, FULHAM, LONDON, S.W.

Messrs. JOSEPH and SMITHEM, Architects. (See p. 520.)

## THE PRODUCTION AND INDUSTRIAL APPLICATIONS OF ZINC.

At the Royal Society of Arts on Wednesday evening Mr. J. C. Mulden, A.R.S.M., M.Inst.M.M., read the Peter Le Neve Foster prize essay on "Zinc, Its Production and Industrial Applications." Dr. Dugald Clerk, F.R.S., occupied the chair.

The lecturer first dealt with the physical and chemical properties of the metal, pointing out that at a red heat zinc is strongly oxidised, even by carbon dioxide, with the products of zinc oxide and carbon monoxide. This constitutes a decisive factor in the metallurgy of zinc, and confines the practically applicable methods of extraction from its ores within very narrow limits. Zinc has no long history; practically unknown, save to a few, until the middle of the eighteenth century, it attained no great importance until certainly the first quarter of the nineteenth. The nomenclature of zinc is a little confusing. The British usage is to apply the term "spelter" in designation of ordinary ingot zinc of commerce, the word "zinc" being usually reserved for the rolled metal and for chemical and mineralogical terminology. The miner thus sells ore to the smelter on the basis of its zinc contents, and the latter markets the extracted metal as spelter, which is not, strictly speaking, "metal," but a commercial alloy consisting mainly of zinc, containing sensible proportions of lead and other metals. Recent English usage has inclined towards the use of the word "spelter" for all grades of metal up to those containing 99.8 per cent. of zinc or thereabouts, those of higher quality than this being designated "fine zinc." The lecturer explained why it has not been found possible to smelt zinc ores in blast or reverberatory furnaces such as are used for iron, lead, and copper. The oxidising influence of carbon dioxide alone on zinc vapour is such that in distillation operations, at the temperatures ordinarily employed in practice, a tenor of 0.25 per cent.  $\text{CO}_2$  would be hopelessly inadmissible. The requirements for a good retort are refractoriness, strength, density, and impermeability to zinc vapour, freedom from cracking, and maximum resistance to the cumulative corrosive effect of the impurities in the charge. The clays therefore utilised in the manufacture must be of special nature adapted to meet these conditions, which are best covered by a mixture composed of burnt clay, or chamotte, finely ground coke, and sufficient raw clay to act as an efficient binding agent. Passing on to consider the uses of zinc and its compounds, the author showed that up to about the middle of the nineteenth century the industrial uses for zinc were confined substantially to the manufacture of alloys and to rolled sheets, largely used for roofing. With the spread of the so-called galvanising, whereby sheets of iron are dipped in molten zinc and receive a thin coating, a new avenue for its employment was opened up, and this industry is to-day the greatest consumer of the metal.

The manufacture of alloys constitutes the most varied and interesting use of zinc, although in importance of actual tonnage of metal consumed it comes at least second to galvanising. Zinc alloys with copper in all proportions to form brass. The ordinary brasses contain from 27 to 45 per cent. of zinc, with from 73 to 55 per cent. of copper, the colour and characteristics varying with the relative proportions of each. For the commoner brasses, particularly those for casting and turning, a small proportion of lead is not only admissible but even desirable; but for the finer grades, and those intended for spinning and drawing, it exercises a most detrimental effect by causing cracks and fissures. "Galvanising," which has no connection with electricity, forms the basis of a huge modern industry which is by far the largest consumer of spelter to-day, largely in the forms of galvanised wire netting and corrugated roofing sheets. Rolled zinc sheeting finds extended use on the Continent, where it is used to a very large extent indeed for roofing, either in the original sheets, or in ornamental stamped tile form nailed on exactly as tiles are. As roofing, particularly in the inclined position, it is durable, light, and efficient, and although it has as yet found

little application in the United Kingdom for this purpose, the reasons are certainly not due to the shortcomings of the material. True it is inflammable, but that only under conditions likely to in any case destroy the building roofed with it. So important and extended are its uses in Continental countries for roofing that the spelter market may be very materially influenced by the prosperity or otherwise of the general building trade. Fine sheets in perforated form are used as screens and sieves, and in thinner gauge and unperforated form for the lining of airtight wooden cases hermetically sealed by soldering.

Thick rolled zinc plates, sawn to suitable sizes and drilled for bolting, are employed to a considerable extent in marine boiler work to prevent corrosion of the boiler-plates.

Thin zinc sheeting stamped with varied ornamental designs in relief has of recent years found a very considerable use for ceilings, and for dozens of articles in ordinary domestic use, such as bath-tubs and pails. We owe the satinised surface finish on many of our better-class papers to the use of hot zinc sheets with a fine homogeneous surface. Passing on to consider the production of zinc, Mr. Moulder reported that, leaving out of account iron and steel, the metals in most common use are, in their order, lead, copper, and zinc. The world's supply of these three is such that in the year 1913—the latest for which figures are available—we had for every 1,000 tons of lead produced 921 tons of copper and 920 tons of zinc. No one can as yet tell what the position of zinc will be after the conclusion of peace. Much will depend upon the condition in which Belgium, Upper Silesia, and Rhineland are left, coupled with the very considerable extension of the smelting industry which has already taken place in the United States, and is by no means at an end. Russia, Japan, and Holland will almost certainly figure in the material productive increase, although in lesser degree. So far as Britain is concerned, we may confidently predict an increase in production, the degree being dependent upon the manner in which the proposition is approached and handled. If certain comprehensive schemes, recently outlined, for the treatment of Imperial ores in the United Kingdom come to fruition, the increase may be great indeed.

What we have now to see to is not so much the hasty establishment of domestic zinc-smelting works on an unprecedented scale as the effective dissolution of Teutonic control once and for all. This must be coupled with the energetic establishment of the smelting industry on well-thought-out and supported lines, possibly with national support and aid.

## LONDON COUNTY COUNCIL.

At the meeting yesterday of the London County Council it was reported by the Main Drainage Committee that the enlargement of the pumping station at the Southam outfall has been constructed and informally opened. The new engine-house has been designed to accommodate eight sets of centrifugal pumps and engines, but it is not proposed to erect for the time being more than half this plant, and four sets are now in position. These are driven by steam, and the existing boiler-house has been enlarged and four additional Lancashire boilers have been installed for the purpose. Each of the new pumps, which have suction and discharge pipes 38 ins. in diameter, is capable of delivering from 22,500 to 32,000 gallons a minute, and is driven direct by a vertical, enclosed type, triple-expansion engine having three cylinders, each placed over a crank, and developing at full speed, about 420 indicated horse-power. The contractors for the engine-house and the constructional work generally were Dick, Kerr and Co., Ltd.; for the engines, Fullerton, Hodgart and Barclay, Limited; for the pumps, Boving and Co., Limited; and for the boilers, Galloways, Limited. The total cost of the work amounts to about £94,000.

The Housing of the Working Classes Committee reported that compensation has now been finally assessed in all disputed claims in respect of property required for the Tabard Street scheme, and terms of purchase

have been arranged in all the remaining cases. The committee find that it will be possible to make a large reduction in the original estimate approved by the Council. Eight hundred and seventy-five hereditaments were included in the scheme, and 151 claims were dealt with. The original estimate of cost of acquiring property, including costs and incidental expenses, was £439,000; the total amount claimed, exclusive of an informal claim (£500,000) was £372,493; the total amount of settlements and awards was £201,362. The revised estimate of total cost of acquisition is £225,000. The estimate of £473,300 approved in November, 1910, includes a sum of £34,300 in respect of the cost of roads and the laying out of the open space on the Tabard Street area, and this figure may have to be revised. The committee therefore propose the reduction of the approved estimate by £200,000. All the clearance schemes carried out by the Council and the Metropolitan Board of Works dealt with an area of 92.5 acres at a cost per acre of £34,350. The Boundary Street scheme dealt with 14.3 acres and cost £23,800, whereas the Tabard Street scheme dealt with 18.5 acres and cost £14,000, or rather less than three-fifths of the cost per acre of the Boundary Street scheme, and only two-fifths of the average cost per acre of all the other schemes. Among the various causes which have contributed to the very favourable result was that the value of property of the class dealt with has much depreciated in recent years. The result of the arbitration in the disputed cases was also satisfactory.

The Building Acts Committee reported as to the London County Council (Celluloid, etc.) Act, 1915. This Act provides that from and after April 1, 1916, all celluloid stores within the county, excluding the City of London, shall be registered with the Council, and that upon the regulations made under the Defence of the Realm Act, 1914, ceasing to operate, certain provisions prescribed in the Act shall apply to such stores. The Act also gives the Council powers as follows, with regard to the means of escape from celluloid stores and celluloid factories in the county, including the City of London:—(i.) It is unlawful to use for the purposes of a celluloid factory any part of any building which is situate beneath or at a lower level than any other part of such building used for residential purposes, but any part of any building so used on April 1, 1916, may with the consent of the Council continue to be so used. (ii.) In the case of any building used in part for the purposes of a celluloid factory and in part for purposes other than a celluloid factory or a celluloid store, adequate means of ready escape in case of fire must be provided. (iii.) It is unlawful, save with the consent of the Council, for any person to use as a celluloid store any part of any building which is situate beneath or at a lower level than any other part of such building used for residential purposes. (iv.) In the case of any building used for the purposes of a celluloid store or in part for those purposes and in part for other purposes, the Council may require the provision of adequate means of ready escape in case of fire from such building. The committee recommend the Council to exercise the powers given under the Act.

There are now 468 members of the Architectural Association serving with the forces.

The death occurred last week of Mr. W. J. Goode, road surveyor for the East Central division of the Salop County Council.

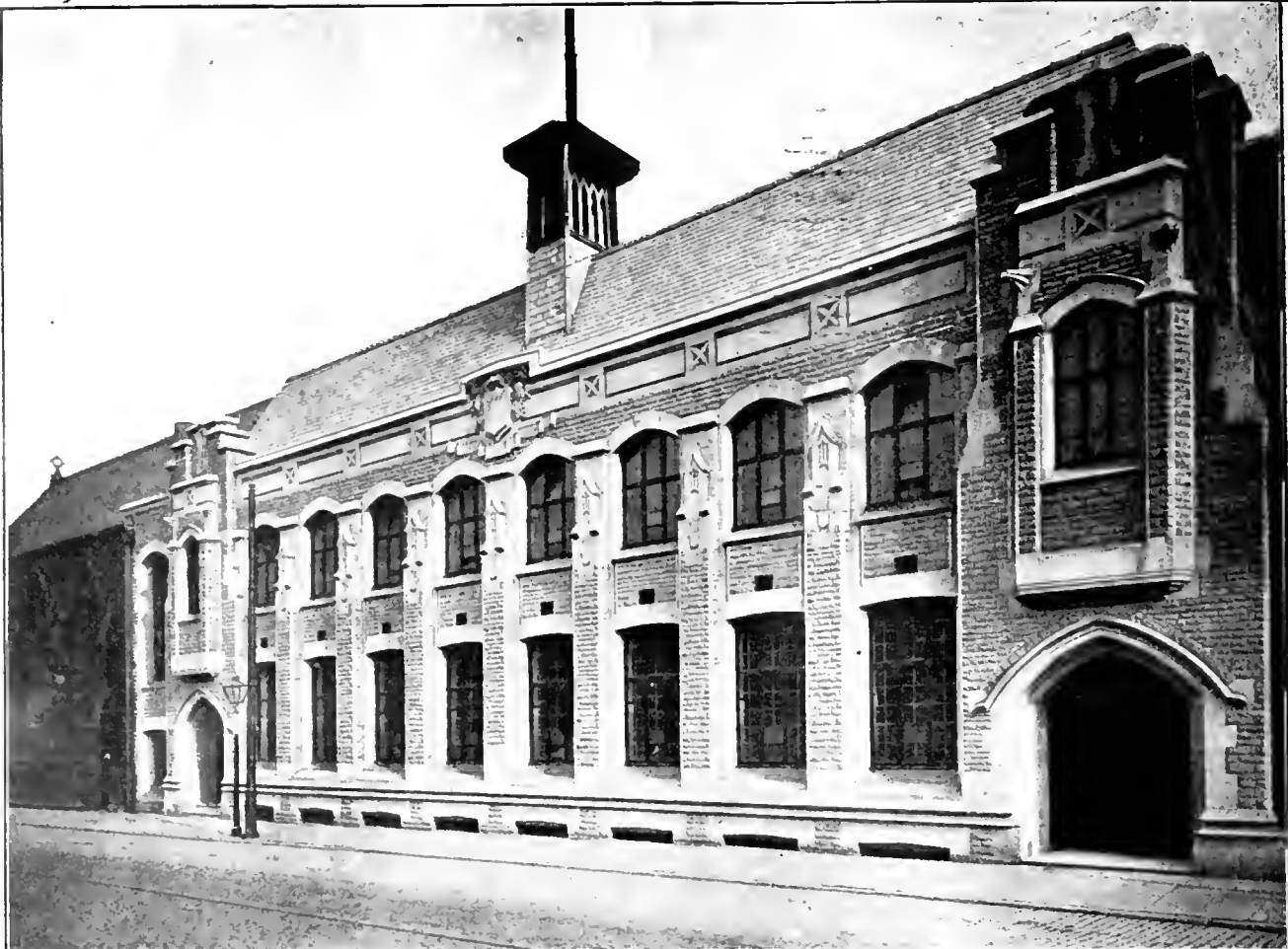
Extensions are being made to Messrs. Pegless's brass foundry at Doncaster. The contractors are Messrs. Johnson and Moore, builders, Babby Road, Doncaster.

The Eastbourne Board of Guardians are about to enlarge their cottage home in Daere Street and effect alterations to the premises in Hartfield Road, from plans by their architect, Mr. F. G. Cooke, M.S.A., of Hyde Gardens, Eastbourne.

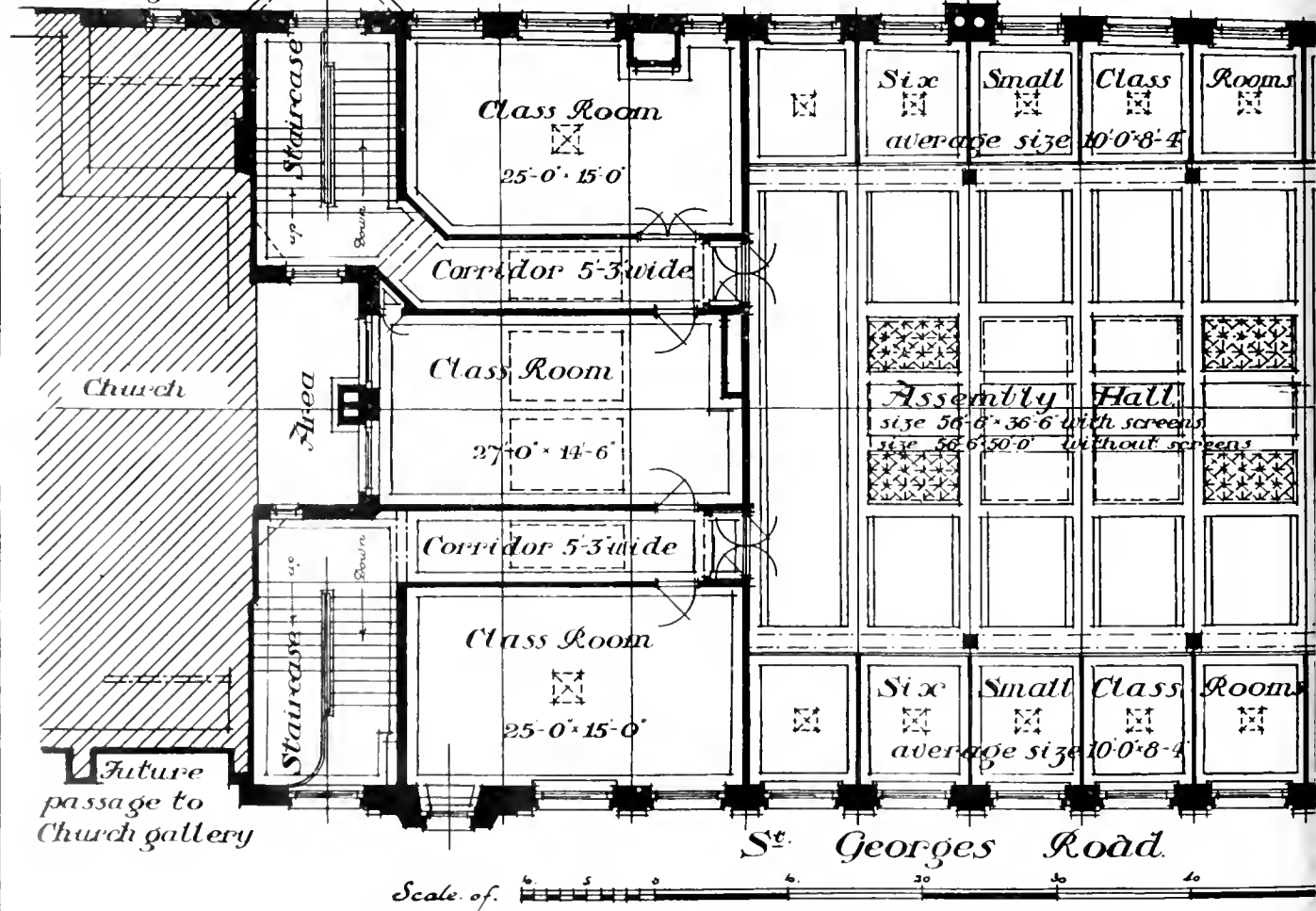
The "Diario Oficial" (Montevideo) of April 8 publishes a Decree authorising the Executive Power to invest the sum of 19,000 pesos (about £4,200 at current rate of exchange) in the construction of a school building in the town of San José.







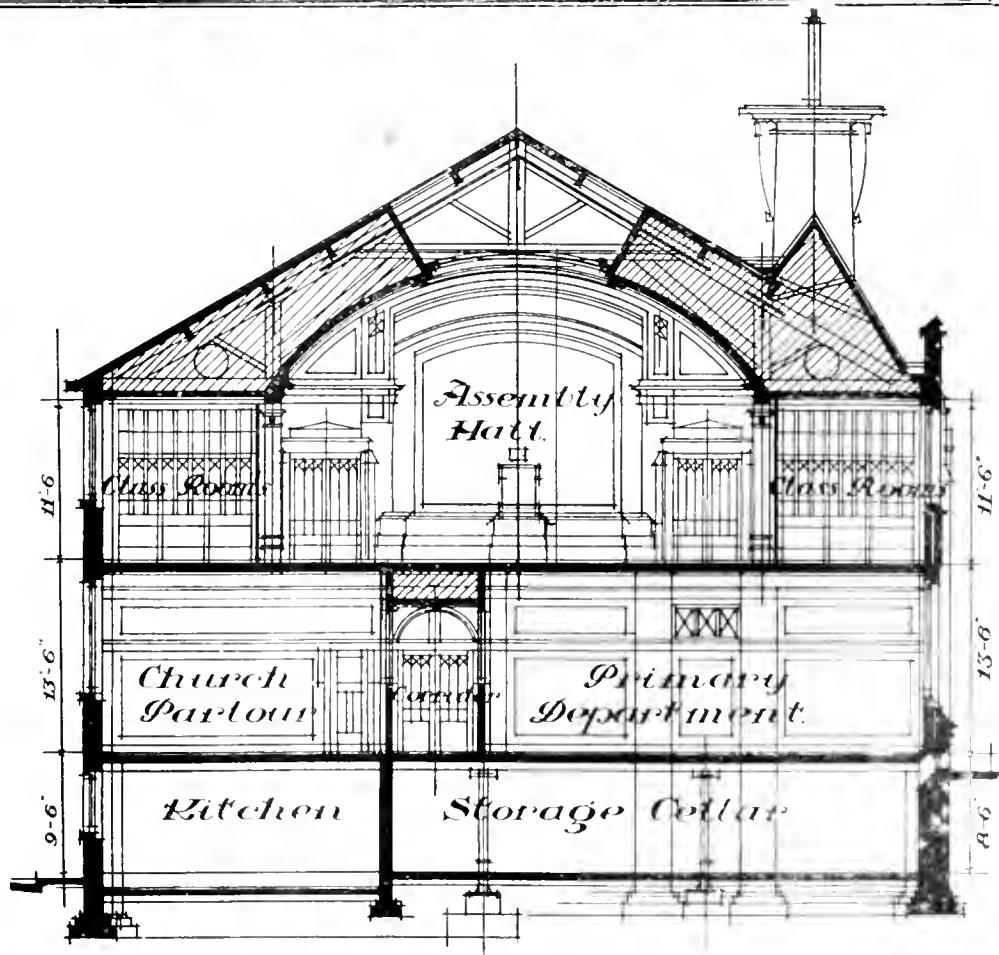
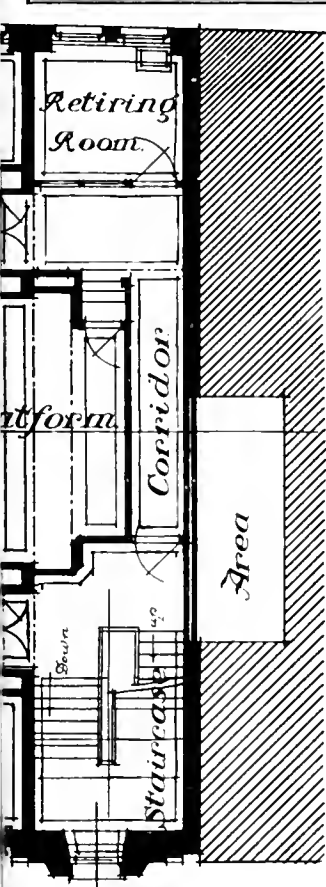
Future passage to  
Church gallery



Architects, Messrs. L. & C. Ltd.

INSTITUTE AND SUNDAY SCHOOLS, ST. GEORGE'S ROAD CONGR

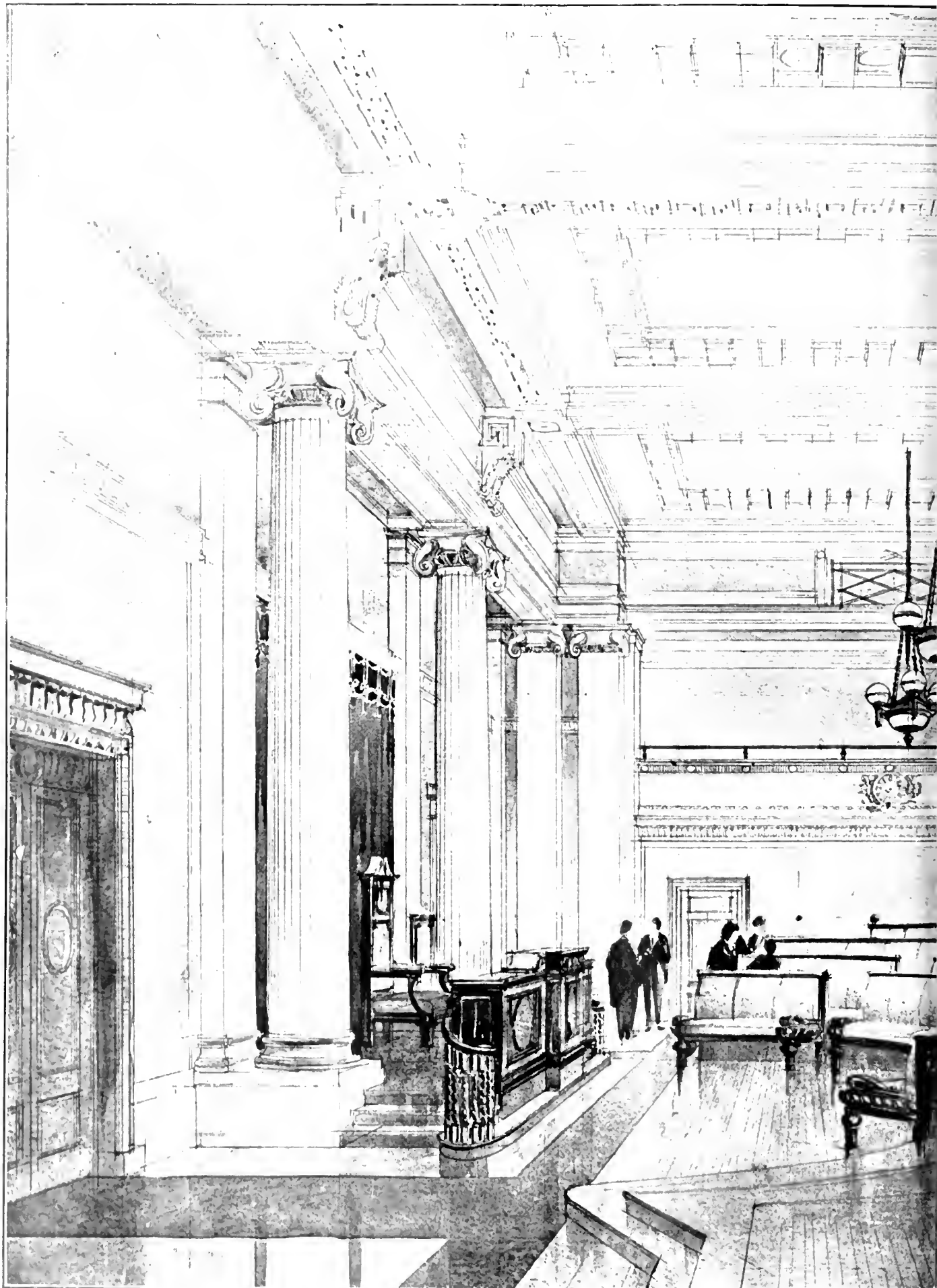






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NEW BOARD ROOM FOR THE METROPOLITAN WATER BOARD, NEW CENTRAL



LIBRARY OFFICES, ROSEBERY AVENUE, E.C.—MR. H. A. TEN HILL, F.R.I.B.A., ARCHT.

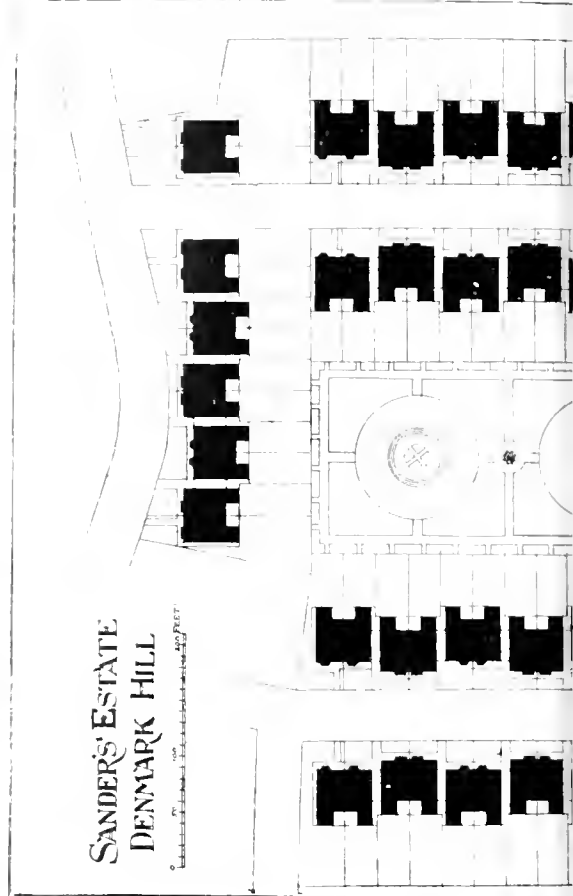
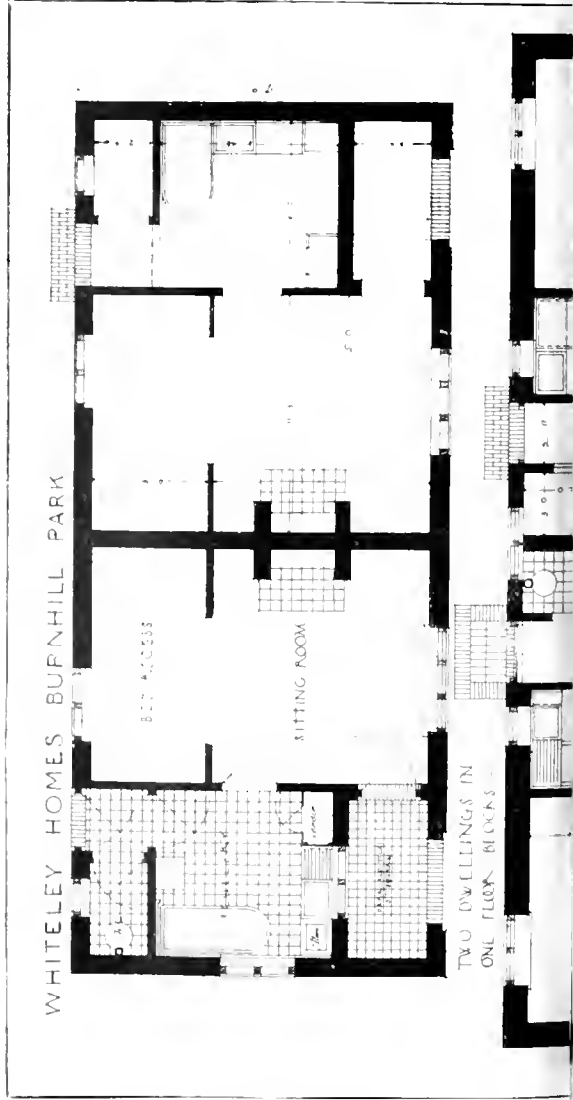
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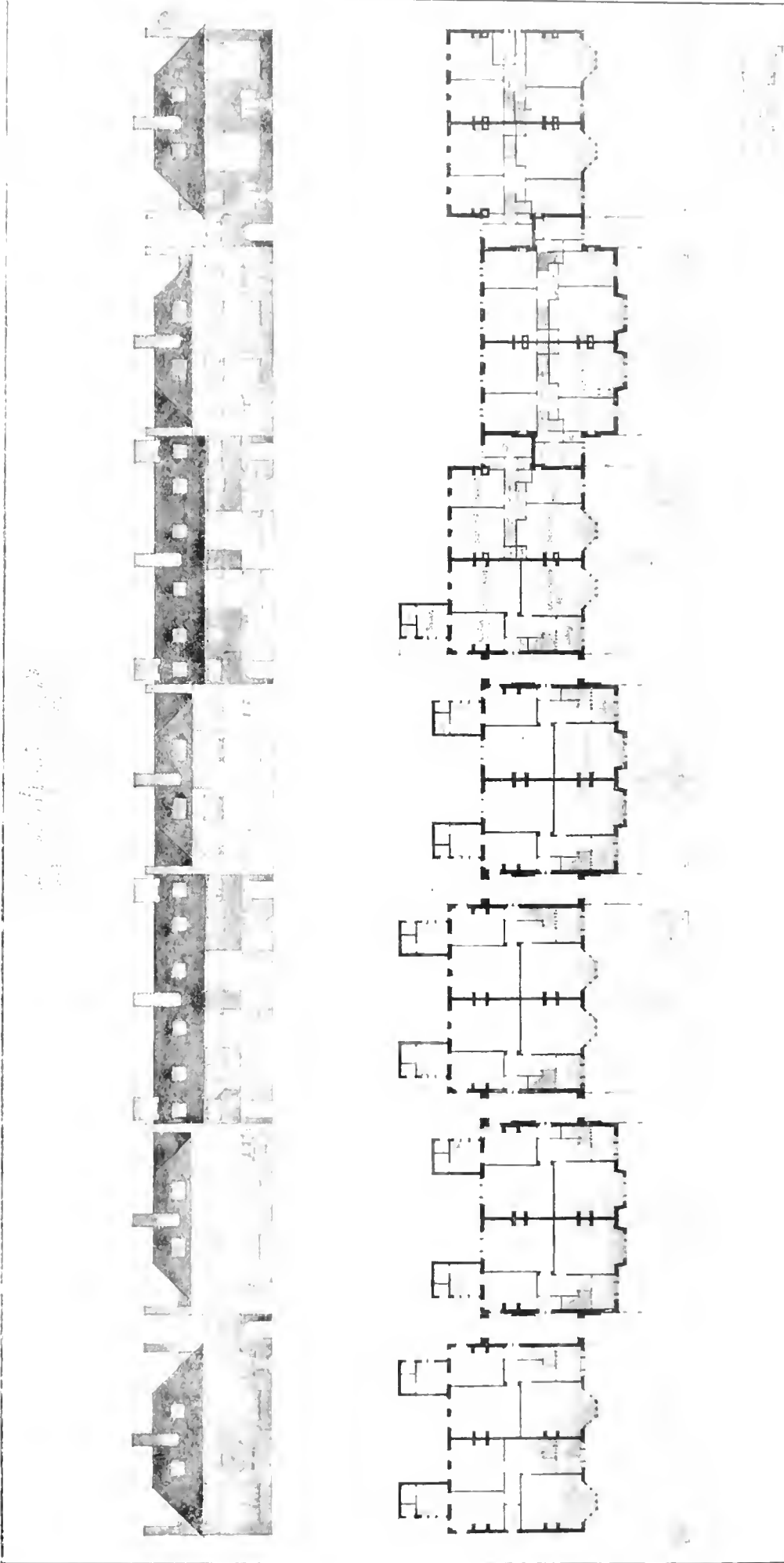
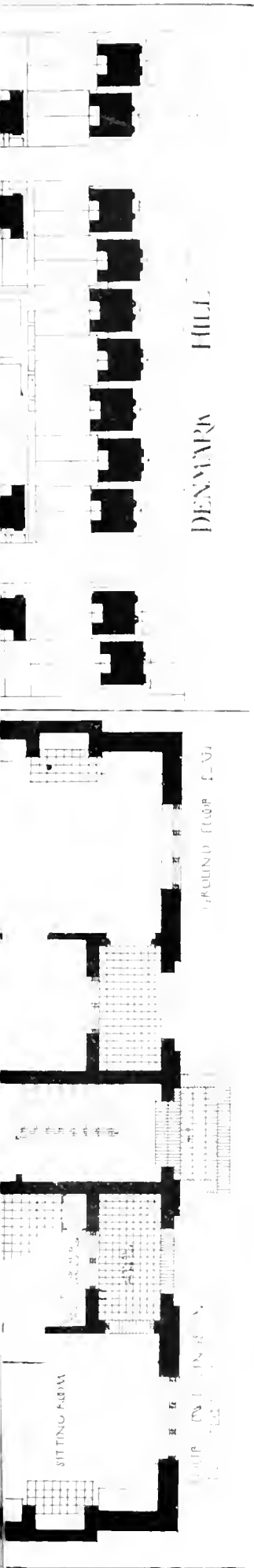
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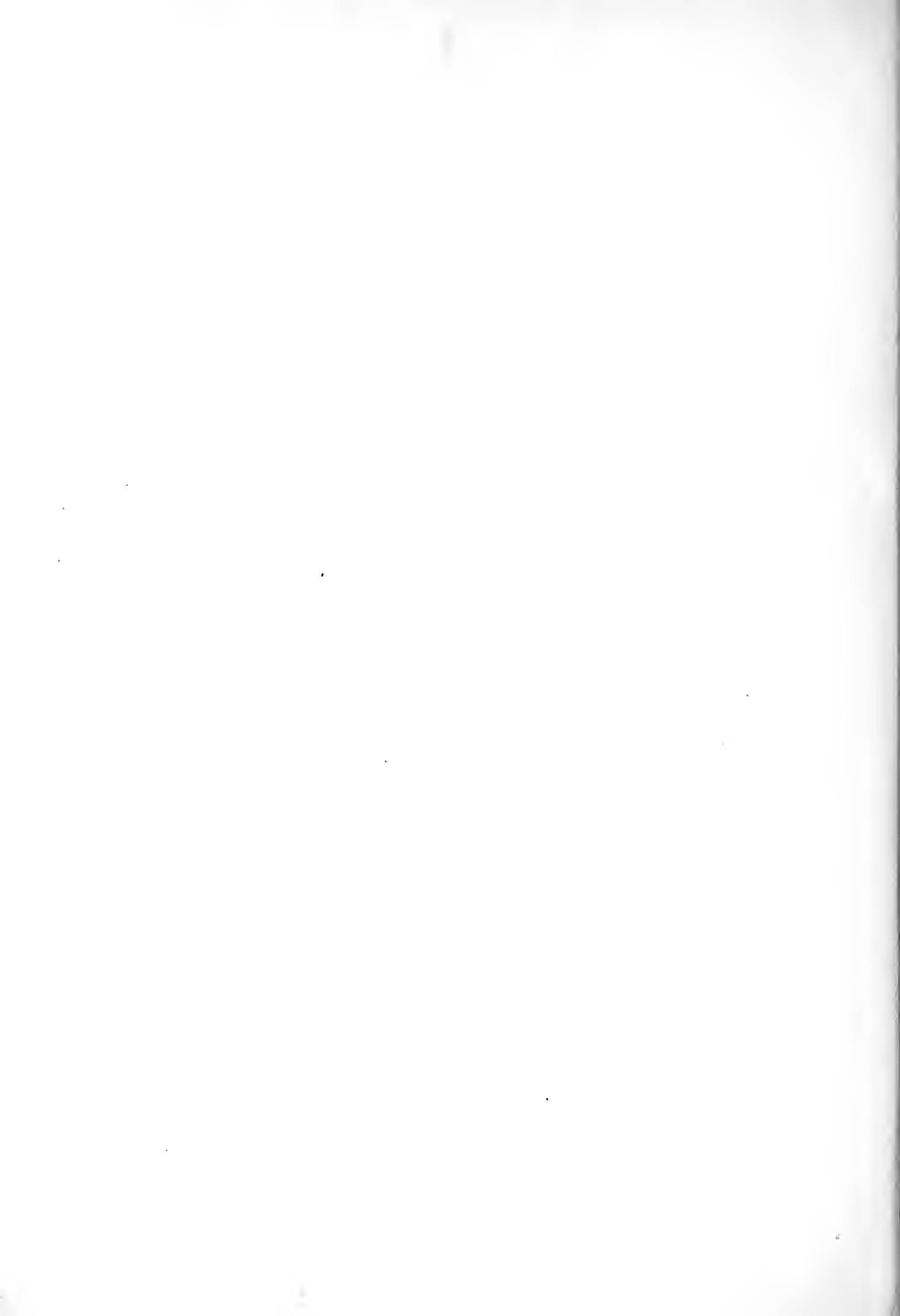
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WHITELEY HOMES, BURNHILL PARK, AND SANDER'S ESTATE, DENMARK HILL, S.F.  
 MR. ERNEST NORTON, A.R.A., P.R.I.B.A., Architect.



## Our Illustrations.

### NEW BOARDROOM FOR THE METROPOLITAN WATER BOARD, NEW CENTRAL OFFICES, ROSEBERY AVENUE, E.C.

The original water-colour perspective, from which our double-page plate has been reproduced today, showing the interior of this handsome Boardroom for the Water Board, is now at the Royal Academy. We referred to the drawing in our review of the Architectural Gallery, given in the *BUILDING NEWS* for May 3. An exterior view of the same block of buildings appeared in our pages for October 27, 1915. The whole of the competition designs will be found illustrated by us on June 5, 1914, when plans of all the submitted schemes appeared in the *BUILDING NEWS*. Mr. H. Austen Hall, F.R.I.B.A., is the architect, and the work is now in process of building.

### WHITELEY HOMES, BURNHILL PARK.

The drawing here reproduced is on view at the Royal Academy Exhibition. The perspective shows a group of the section designed by Mr. Ernest Newton, A.R.A., P.R.I.B.A., and consisting of a pair of blocks of single-story dwellings, and two blocks comprising four dwellings arranged on two floors. The accompanying plans illustrate the cottages in detail, each with a sitting-room and bed recess out of same, also a commodious scullery, accommodating a bath, and an external w.c. adjoining. The facings are of Collier's bricks of varied shades, five courses to the foot. The general contractors for these houses are Messrs. H. Martin, Ltd., of Northampton. Mr. Comfort is the resident or general clerk of the works for the whole scheme of the Whiteley Homes. The several buildings now in course of erection were allocated to several selected architects—viz., to Sir Aston Webb, R.A., Mr. Reginald Blomfield, R.A., Sir Ernest George, A.R.A., Mr. Merwyn Macartney, B.A., Mr. R. Frank Atkinson, Mr. Walter Cave, and Mr. Ernest Newton, A.R.A. The design of the church has been entrusted to Mr. Walter Tapper, F.R.I.B.A., and Sir Aston Webb is building the hall. Both these buildings necessarily will form an important feature in the general effect, and also the amenities of the estate, which is being admirably administered and arranged as the founder intended.

### THE SANDERS ESTATE, DENMARK HILL, S.E.

This elevational drawing, with plans set out on our double-page plate below the above illustration, shows the Denmark Hill part of the scheme of building for this property. The former big detached houses, which stood facing Denmark Hill, having become untenable owing to the change in the character of the neighbourhood, have been pulled down. It is the intention to develop the estate on the lines here given, but to preserve as far as possible the old grounds and fine trees, by making large central gardens, common to all the tenants, while giving to each new house its own small garden. The roads have already been made, but on account of the war the erection of the residences has been stopped. The accompanying block plan shows the lay-out of this section of the Sanders Estate. The general plans drawn below the elevations give particulars of the accommodation provided, with details of the internal contrivances adopted. The several blocks are arranged in a terrace form, having every other house made to project, and as a consequence the intermediate ones become recessed. Square and canted bay windows alternate, to give variety to the elevations; otherwise the plans are practically repeats. Through-ways occur on the ground floor to give tradesmen and others access to the back of the premises. On the first floor, as the plans show, bath-rooms and w.c.s. are disposed above these open-ended passage-ways, from whence the kitchens are partly lit. The sculleries and coal places, etc., project at the rear. Mr. Ernest Newton, A.R.A., P.R.I.B.A., is the architect, and the drawing

now reproduced is at the present exhibition of the Royal Academy.

### INSTITUTE AND SUNDAY SCHOOLS, ST. GEORGE'S ROAD CONGREGATIONAL CHURCH, BOLTON.

This building has been erected adjoining the present church and is to be used for Sunday-school and Institutional purposes. Messrs. Ormrod, Pomeroy and Foy, of Bolton, are the architects. The main elevation to St. George's Road is faced with Yorkshire par-points and stone dressings, and the institute is designed in a style of Late Gothic, expressive of its purpose, but intentionally subordinate to the church. The plan explains clearly the scheme and arrangements adopted, as shown also by the section. The building contract, inclusive of heating, lighting, and ventilation, has been carried out by Messrs. E. and S. Street, of Farnworth, who sublet the following contracts: Masonry, Bolton Stone Co., Ltd.; brickwork, Mr. G. H. Pearce, Bolton; steelwork, Messrs. Thomas Walmsley and Sons, Bolton; slating, Mr. John Hodgson, Bolton; plastering and painting, Mr. H. Critchley, Bolton. The work has been done under the superintendence of the architects.

### PROFESSIONAL AND TRADE SOCIETIES.

**ARCHITECTURAL ASSOCIATION OF IRELAND.**—The annual report of the committee (session 1915-1916) emphasises the difficulties with which the committee have had to contend during the session, although, despite all drawbacks, the work of the association has been carried on successfully. The new members number six, and one member has been reinstated by the committee. Three members have resigned, and one has died. The total number of members is now 115, the net increase since last session being five. The first prize offered in connection with the class of design has been awarded to Mr. Stephen S. Kelly. The prizes in connection with the history class have been withheld, as sufficient progress was not made by the students attending the class. Two sets of drawings were submitted for the institute prize, the design of Mr. W. S. Keatinge being placed first by the assessor, Mr. C. A. Owen. One set was submitted for the vice-president's prize, and, on the recommendation of the assessor, Mr. L. O'Callaghan, the prize has been awarded to Mr. Stephen S. Kelly. One set was submitted for the Downes bronze medal, and as the assessor, Mr. G. P. Sheridan, considered the drawings were of a sufficiently high standard, the medal, together with the additional prize of two guineas, has been awarded to Mr. W. A. Dixon. The committee decided, for reasons known and appreciated by all, to abandon the annual dinner. The annual exhibition of members' work was held from February 5 to March 5, and was largely attended by the members and their friends. During the month of March an exhibition of drawings, submitted by Dublin architects in competition in connection with additions to Louth County Hall was held and attracted much attention. The committee passed a resolution that members serving with his Majesty's Forces should be exempt from payment of subscriptions for the current session. This of necessity involves a serious reduction of income, as the balance-sheet reveals, but it was felt to be the proper course to pursue. At a special general meeting, held on April 13, the following resolution, proposed by your committee, was unanimously passed:—"In view of the prevailing conditions consequent upon the war, the absence of many members on active service, and the necessary restrictions of the association's activities, etc., the committee proposes that the officers and committee at present acting shall retain office during the coming session, 1916-17, and that the bye-laws governing appointment and election of officers and committee shall be suspended in so far as is necessary to give effect to the first part of this resolution. Such suspension to have effect only until the statutory date for election of officers and committee for session 1917-18." The committee desire to place on record that the total number of members now serving with his Majesty's forces is twenty-one, most of whom

are now abroad. Happily, with one exception, and that not fatal, no casualties have been reported. A permanent roll of the names of these members has been prepared and is now hanging in the hall as a lasting tribute to their patriotism.

**INSTITUTION OF MUNICIPAL ENGINEERS.**—A meeting of the Eastern and North Eastern Districts of the Institution of Municipal Engineers was held on Thursday at the Guildhall, Norwich. The Lord Mayor (Mr. E. S. Southwell) presided, and, in welcoming the visitors, gave an interesting epitome of the history of the city. He referred to the association of the city with art and literature, mentioning Crome, John Sell Cotman, Starke, Vincent, Thos. Browne, Geo. Borrow, and others. Philanthropy, he observed, had no more honoured name than that of Elizabeth Fry. A vote of thanks was passed to the Lord Mayor on the motion of Mr. W. F. Unwin (March), seconded by Mr. G. Benson (Chilvers) (hon. district secretary, of Oundle). Mr. Unwin was elected chairman of the meeting. Mr. A. W. Brooker (Winbington) was appointed chairman of the two districts on the motion of Mr. B. Wyand (general secretary), seconded by Mr. Chilvers; and Mr. A. Paterson (St. Faith's) was elected vice-chairman, on the motion of Mr. Chilvers, seconded by Mr. G. Rodley (Norfolk). Mr. Chilvers was re-elected hon. secretary. In the afternoon Mr. G. Benson Chilvers read a paper on "House Drainage," the principle of which, he said, was the complete and immediate removal from the house and its surroundings of all slop, waste, and soil waters, especially those of an offensive nature. Upon the efficiency of this depended to a great extent the health of the inmates of the dwelling. House drainage and sanitation were still carried out far short of the ideal; anything and anyhow was still the motto of a large number of people, more especially of the jerry builder and owners of small property. Discussion followed, and subsequently several places of interest were visited.

### LEGAL INTELLIGENCE.

**SPENCER, SANTO AND CO. v. H.M. COMMISSIONERS OF WORKS.**—The hearing of this protracted case before the Official Referee, Mr. Pollock, at the Royal Courts of Justice, was suspended from Wednesday last until Monday this week owing to the indisposition of the first witness, Mr. Philip H. Patten, who has been the foreman of works to the plaintiff company throughout the progress of the building operations at the Local Government Board buildings in Parliament Street. It was agreed by counsel, with the consent of the Official Referee, to postpone Mr. Patten's further cross-examination and to interpose other evidence. Mr. F. Durrant, the managing director of the plaintiff company, was called and examined by Mr. Compston, K.C., as to the payments received on architect's certificates during the progress of the work and the value of the work done and still remaining to be executed, and was afterwards cross-examined by Sir Reginald Acland. On Monday morning Mr. Patten, having recovered, was again put in the witness-box, and his cross-examination was resumed and was being continued yesterday (Tuesday) when we went to press.

**A ROOD SCREEN FORBIDDEN IN A CATHEDRAL.**—Complaints having been made to the Bishop of Newcastle of the figure of the Lord having been placed upon the cross surmounting the rood screen in the Cathedral Church of St. Nicholas—for which Chancellor Errington refused a faculty last August the Bishop summoned the vicar and churchwardens to meet him and explain their disregard for the ruling of the court. In his reply, the vicar (the Rev. Canon Gough) tells the history of the screen, and emphasises the point that while the Chancellor would certainly have granted such an unopposed faculty in the case of a parish church, he must, "for some occult reason," says the vicar, refuse it in this case because St. Nicholas is a Cathedral Church. The Bishop insisted upon compliance with the Chancellor's ruling within a week, and the figure has now been removed from the rood.

A new wing is to be added to the Presentation Convent, Mullingar. The plans and specifications have been prepared by Messrs. Wm. H. Byrne and Son, architects, 20, Suffolk Street, Dublin.

## Building Intelligence.

**GOLDTHORPE, WEST RIDING.**—The church of St. John the Evangelist and St. Mary, erected at Goldthorpe at the cost of Viscount Halifax, was consecrated on Thursday by the Bishop of Sheffield. The church is constructed of ferro-concrete, as is the presbytery, which communicates with the sanctuary by means of a covered corridor. The architect was Mr. A. V. Nutt, M.V.O. The style is a free treatment of Venetian. The commanding feature of the interior is the baldachino, with its gilt and black pillars supporting a canopy beneath which is suspended a crucifix in black. The cost has been about £20,000.

**NEW DELHI.** The construction of New Delhi is making satisfactory progress, says a writer in the Empire Supplement of the *Times*, having regard to the curtailment of the Budget allotment, in consequence of the war, to £535,000 last year and to the same figure for 1916-17. The Indian clerks' quarters and the menials' quarters have been completed, and bungalows have been provided for the occupation of the works staff. Experimental bungalows for the higher officials, to be built in the neighbourhood of Government House, are being put in hand, and are expected to be ready for occupation early in 1916. The foundations of Government House and the large blocks of Secretariats by which it will be flanked have been laid and the basement walls are going up. An indication of the progress at the Governmental centre on Raisina Hill is to be seen in the Royal Academy, where the statues of their Majesties in Coronation robes, which are to be placed in front of Government House, are exhibited.

**ROSWITH, FIFESHIRE.**—When the intention of the Government to develop a Naval Base at Rosyth was made known, it was realised that the housing of the future population there would present an opportunity for giving practical effect to some of the latest ideas on town-planning. Development has been slower than was at one time anticipated, but, despite the war, operations for the laying down of a garden city are proceeding expeditiously, and on Thursday afternoon the first group of the houses built for the Admiralty by the Scottish National Housing Co., Limited, were formally opened. Nearly twenty houses are ready for occupation, and within the next year, month by month, houses to the number of 600 will be completed. In addition, arrangements are being made for the plans and roads in connection with another 450 houses. The houses are built of brick and faced with harl, and the average accommodation consists of a living room, three bedrooms, and a scullery and bathroom. The architects are Messrs. Greig, Fairbairn and Macniven, 31, York Place, Edinburgh.

### TRADE MOVEMENTS.

**INCREASE OF WAGES IN THE BUILDING TRADES.** An increase of 1d. per hour has been awarded by the National Conciliation Board for the Building Trades to all sections of workmen employed in the building industry in London, Liverpool, and Birkenhead.

### TRADE NOTES.

Bayle's latest patent "Air Pump" ventilators have been applied to the Ipswich Corporation's Tramway Department, Constantine Road, Ipswich.

Messrs. E. H. Shorland and Brother, Ltd., of Fallowfield, Manchester, have recently supplied their patent Manchester stoves to the Salubrious Sanatorium, Ryton-on-Tyne.

A very damp wall at the Mayor's House at Worcester gave considerable trouble to the corporation. Many remedies were tried, with unsatisfactory results. Ultimately the chief sanitary inspector suggested a Pullox cement re-lining, and we understand that a permanently dry wall has been obtained.

At the Annual Meeting of the Guild of Carpenters on Friday the 19th, Mr. John Young submitted statistics of the work done by the Guild of Carpenters in the year ended May 25, 1916. Twenty-two contracts were granted, the total estimated cost being £16,553. For the previous year the amount was £42,975.

### OBITUARY.

Mr. William Leiper, R.S.A., F.R.I.B.A., who, until his retirement from practice four years since, was one of the leading architects in Glasgow, died suddenly at his residence, "Terpersie," Helensburgh, on Saturday, aged 76 years. Naturally of a modest and a retiring disposition, Mr. Leiper was thoroughly artistic in temperament, and evinced great capability in his plans. He was imbued with a strong spirit of traditional feeling, which he adapted to modern needs in his works. He was a pupil of Messrs. Boucher and Conland, architects, of Glasgow, and was afterwards in some London offices. Subsequently he entered the office of Messrs. Campbell, Douglas, and John Stewart, architects, of Glasgow, and then commenced practice on his own account in partnership with Mr. R. G. Melvin, of Glasgow. Among his works were U.P. Churches at Dowanhill, Partick, Lanark, and Brechin; Bugh Hall, Dunbarton; manor for Provost Corsar, Arbroath; Cornhill, Lanarkshire, for Mr. Robert Kay; Coburn and Ruthven Tower, both in Perthshire; Cairnholm mansion for Sir John Ure, former Lord Provost of Glasgow; Moredun for Mr. J. A. Brown, of Paisley; Kelly, mansion for Mr. Alexander Stephens; Ruxton Park, Shrewsbury, for the Rev. T. H. Hunt; the Catholic Apostolic Church, South Side, Glasgow; and alterations to the Park Church, Glasgow. The Sun Fire and Life Offices at the corner of West George Street and Renfield Street, Glasgow, were built from Mr. Leiper's designs, and were illustrated in our issue of August 25, 1893, together with the sculpture decorations were carried out by Mr. W. Burnie Rhind, R.S.A., of Edinburgh. We also gave in the *Building News* for September 3, 1897, a perspective of Knockderry Castle, on the banks of Loch Long, built for Mr. J. S. Templeton; and in our number for April 3, 1903, a plan, exterior and interior of Red Tower, Helensburgh. The saloons and architectural decorations of the palace portion of the Russian Imperial yacht *Livadia* were executed from Mr. Leiper's designs and under his direction about 1886. More recently he carried out the decorations in the banquetting-hall of the late William Young's Municipal Buildings in George Square, Glasgow. Mr. Leiper, whose portrait appeared in our issue of June 6, 1899, joined the Royal Institute of British Architects as a Fellow in 1882. He served as President of the Glasgow Institute of Architects in 1891-2.

### STATUES AND MEMORIALS.

**YORK MINSTER.**—The Right Hon. A. J. Balfour, First Lord of the Admiralty, will give an address during the ceremony of the unveiling, by the Marquis of Zetland, in York Minster, on June 16, of a memorial to Rear-Admiral Sir Christopher G. F. M. Cradock, K.C.V.O., C.B., who perished in the naval engagement off the coast of Chili on Sunday, November 1, 1914. The memorial, the work of Mr. F. W. Pomeroy, A.R.A., takes the form of a bust in white marble, with a bronze figure on either side representing respectively Courage and Honour. The rest of the memorial, which is to be erected on the south end wall of the north transept, is in alabaster.

### WATER SUPPLY AND SANITARY MATTERS.

**PAISLEY'S WATER SUPPLY.**—A sixth water reservoir has been completed at Barchraigs, near Howwood, for Paisley Water Commissioners. The others are on Gleniffer Braes and at Campbell, near Largs. The new loch takes its supply from the last-mentioned, and its capacity is 1,200,000,000 gallons. The new reservoir was inspected by the Water Commissioners on Wednesday afternoon, when Provost Robertson turned on the water of the new reservoir.

Mr. R. M. Smith, surveyor to the Fordings-bridge Rural District Council, who is about to join the Army, will be allowed by the council £60 per annum during his absence on military service.

A new school at Crebilly, near Belfast, erected at a cost of £800, has just been opened. It accommodates ninety children in two departments. The builder was Mr. Oliver MacAulay, of Belfast.

## Our Office Table.

In opening the exhibition of the Royal Amateur Art Society at 25, Park Lane, W., Sir Ernest George, A.R.A., remarked that the time which he had given to painting in the street, the church, or the market-place had been the golden days of his life. He might be regarded as old-fashioned if he insisted on the first importance of drawing. There was often the temptation to break out in colour and to talk of "tone values" before the elementary knowledge of drawing was acquired. In the search for novelty for its own sake pretentious nonsense too often obtained a hearing. The attempt to bring in a "new art" was too often made by those who had not learned the grammar of the old; who thought to avoid serious study and the drudgery of taking pains.

Mr. F. Sydney Eden, in a letter to the *Times* on the preservation of old stained glass during raids, points out that since old leadwork offers less resistance to explosive force than modern leads, the liability of ancient glass to irretrievable damage by bombs or gunfire is less when it is in its original lead binding than when it has been released in modern times. An explosion may drive ancient glass from its original leads, but there is a strong probability that much of it will escape fracture and so be available for restoration. Protective external boarding should, he remarks, be placed some feet away from the glass and be backed with sandbags. Existing external lights of modern white glass—especially thick plate—put up to protect old glass should at once be removed, and if protection against everyday risks is necessary wire netting substituted for them. Recent events have shown that these external lights are an additional danger to old glass exposed to the effects of an explosion. If old glass be removed until after the war, a coloured tracing of every panel taken out should be made prior to its removal, so that there may be no difficulty in correctly replacing pieces of glass which may fall from their settings in the course of removal. Neglect of this precaution is a fruitful source of misplacement of old painted glass. When old glass is damaged by explosion the debris should be left where it falls. If this be done an expert hand will have a chance of effecting an intelligent restoration; but if the fragments are swept together in heaps and people are allowed to carry away pieces as mementoes, all possibility of doing so is barred. Finally, when peace comes all ancient glass removed in war time should be restored to its place with scrupulous accuracy.

At a meeting of the Rotary Club of Liverpool, held on Thursday under the presidency of Mr. Lloyd Barnes, an address on the development of a city was given by Mr. J. A. Brodie, the city engineer of Liverpool. The lecturer dealt with his topic from the point of view of Liverpool, and foreshadowed the possibility of Liverpool's connection with Birkenhead being extended by means of a fine bridge or an additional tunnel. He suggested that with any extension of the river frontage care should be taken to put upon it buildings that would be worthy of the city of Liverpool. Dealing next with the question of wide roads, Mr. Brodie urged that what was good enough for Liverpool forty years ago should not be good enough for the Liverpool of to-day, and they ought to see to it that the young people had suitable opportunities for obtaining exercise and fresh air. He believed they could find no better way of doing that than in making wide roads and the provision of recreation spaces. If they obtained 300 acres of ground in different parts they could be made centres of sport, and, if they liked, centres for the training of boys under military instructors. If that were done, he felt it would very soon clear up the slums of Liverpool.

Nearly 15,000 German combatant prisoners now in Great Britain are to be given suitable employment as soon as practicable. About 1,000 German soldiers will assist in building a great dam in the valley of the Conway in North Wales. Other detachments will shortly be detailed—as soon as the neces-



sary accommodation for them can be completed—in iron-mining on the island of Rathsay, off Skye, and in timbercutting in Inverness, Yorkshire, and other areas. Civilian prisoners are already at work on the roads and in the quarries of the Isle of Man, and on the farms in Cheshire. The military and naval prisoners are paid the wages prescribed by the Hague Convention—the same rates as those paid to our own soldiers for extra duties.

The Surrey estate, Ewell Castle, is in the market, and will be offered, at the Mart, on June 20, by Messrs. Hampton and Sons, in one or three lots. The castellated mansion, with its modern accessories, has grounds extending to about forty-five acres, in which stand the ruins of the famous Nonsuch Palace. Queen Elizabeth summoned the Earl of Essex to Nonsuch on his return from Ireland, and there had him arrested with a view to his execution. The Duchess of Cleveland demolished the palace, and early last century Thomas Calverley erected Ewell Castle, "at Ye Well," as the village was originally called. Eight years ago Captain Wiener bought the freehold, and, employing a Japanese artist, spent thousands of pounds in laying out a Japanese garden. In excavating for the Japanese lakes Roman silver coins and pottery were found, for Ewell was the Roman Noviomagus.

At Friday's meeting of the Lichfield Rural District Council a letter was read from Messrs. Childs and Withers, Worcester, the contractors for the Burntwood sewage works, making application for financial assistance on account of the loss incurred through the war. "We are losing money heavily," they wrote, "and making very little progress. We tremble to think what our loss will be before the contract is completed." They explained that the amount of the contract, which was commenced a month before the war broke out, was £7,300, out of which they should have made a profit of £600, whereas, owing to the increased price of labour and materials, they would be faced with a loss of £600. The Council decided to consider the application when the contract is completed.

A third edition is published of "The Ship Painter's Handbook," by George S. Welsh, Painter, R.N. (London: John Hogg, 15, Paternoster Row, E.C., 5s. 6d.). It is intended in the first place for painters in the Navy who, having acquired a taste for the work, change their ratings, but it contains a good deal of very useful information for the general painter and decorator, and will be found of considerable service by the amateur, and contains a number of good recipes likely to be helpful to all. There is a good index, and the edition has been revised and corrected to date, Chapter II. being improved, and Chapter XIII. almost entirely re-written. The subject of lettering, too, as it applies to sign-writing has been more completely set out.

After a period of service covering nearly twenty-four years, eighteen as commissioner of buildings and architect, and six years as architect to the Board of Education of St. Louis, Mr. William B. Ittner has resigned. The *American Architect* says: "Few men in practice have had the opportunity—or so successfully availed of it—to impress on a given type of building an individuality and artistic quality such as was afforded to Mr. Ittner during his connection with the St. Louis Board of Education. Mr. Ittner has in the design and construction of the school buildings of St. Louis found opportunity to work out methods of standardisation and equipment that have made their erection possible at a minimum of cost."

The public works committee of the Birmingham City Council decided on Thursday to employ female labour in tar-spraying the streets. Between fifty and sixty women will be engaged at the same rate as that paid to men, but they will not work so many hours.

A drinking fountain is being erected in West Street, Gateshead, as a memorial by her husband to the late Mrs. Macey, who was killed in a motor-car accident at West Auckland. The work is being carried out under the supervision of Mr. Percy Pattinson, the borough surveyor of Gateshead.

## CHIPS.

Mr. Jas. O'Connell, J.P., Kilmahamwood, has been appointed county surveyor (pro tem.) for Meath.

A group of factory buildings is about to be erected at Gainsborough. The contractor is Mr. Bernard Pundrey, of that town.

The late Mr. Henry James Carter, of Rocklands, Palmer's Avenue, Grays, Essex, head of Henry James Carter, Limited, contractors, left a gross amount of £44,382.

A new Congregational church is being erected at Maidstone. Messrs. Corben and Son, Maidstone, are the builders, and Messrs. Ruck and Smith, of Maidstone, are the architects.

The premises of the Toolmakers and Light Machinery Company, in Lower Oxtate Lane, Cricklewood, are being enlarged. The contractors for the extensions are Messrs. Dorey and Co., Ltd., Brentford.

The death is announced, at Alan Road, Llandilo, of Mr. William Bowen-Davies. Deceased was for thirty-seven years county road surveyor for the Eastern Division of Carmarthenshire, retiring some years ago.

Arthur Ellis, thirty-three, who, prior to joining the Royal Fusiliers, was a master builder, living at Seven Sisters Road, London, dropped dead at Dover, and at the inquest on Wednesday death was shown to be due to heart disease.

The Yeovil Rural District Council are considering a scheme, estimated to cost £1,300, for the provision of a water supply for Burwick and Stopford, the plans for which have been prepared by the sanitary surveyor, Mr. N. G. Fish.

At the annual meeting of the Surveyors' Institution, held at Westminster on Monday, Mr. George Francis Stewart, of Dublin, was installed as president for the ensuing year, in succession to Mr. J. H. Hanson, of Huddersfield.

At the tenth annual meeting of the Institute of Plumbers, held at the Town Hall, Ilkley, Mr. T. E. Hill, of Birmingham, the president, in the chair, Mr. John Allinson, of Gateshead, was elected president for the ensuing year, and Messrs. James Wild, of Rochdale, E. K. Lawson, of Hull, and H. A. Ward, of Sheffield, as vice-presidents.

The clubhouse at Seaford, formally opened on Thursday by Brigadier-General G. H. C. Columb, the officer commanding the district, is a permanent structure, erected at a cost of £2,000. Additions are shortly to be made which will render it still more serviceable. All the rooms are on the ground floor. The main hall, 90 ft. long and 40 ft. wide, can be partitioned into two sections.

The Moser Buildings, which have been added to the school at Kingsland, Shrewsbury, will be opened by Viscount Milner on Speech Day, Friday, June 30. They include a library and picture gallery, and have been erected by Mr. Henry Price, of the Welsh Bridge, Shrewsbury, from plans by Messrs. Forsyth and Maule, of Oxford Street, W., whose drawings were illustrated in our issue of September 15 last year.

The death occurred in Paris on Friday of Madame Dieulafoy, the celebrated traveller and explorer, who was associated with her husband, M. Marcel Dieulafoy, in the Persian explorations which brought to light the palaces of Darius and Artaxerxes and other monuments. Madame Dieulafoy, who was in her sixty-fifth year, received for her work, in addition to the Legion of Honour, permission to wear the male attire which she adopted in her travels.

The Local Legislation Committee of the House of Commons have given a decision disposing of the Ashington Urban District Council's opposition to the Tynemouth Corporation Water Bill. They were unanimous in agreeing that as between those two bodies Tynemouth must accept the obligation to develop a new source of supply at Tossom. Except for points of detail capable of arrangement, this decision removes the opposition of the urban council to the Bill.

At the meeting on Wednesday of the corporation of Edinburgh Mr. Fraser, convener of the Town Planning Committee, submitted a draft town-planning scheme for the area at Craigentilly, Restalrig, and Lockend for general approval. The area extends to 896 acres. Tentative approval was given to the scheme, which will be submitted to the local proprietors and the town council at Leith before being presented to the Local Government Board for their sanction.

A store and factory are about to be built in Shuttle Lane, Abbeeden, from plans by Messrs. Wilson and Walker, architects, of that town.

To the memory of those who have fallen in the war, it is proposed to erect a cenotaph in St. George's Church, attached to the Royal Naval Barracks, Chatham.

Alterations and additions are about to be made to Corrigan's Hotel, Cork. Messrs. Chillingworth and Levy, of that city, are the architects, and Mr. D. Hezarty, also of Cork, is the builder.

The partnership hitherto subsisting between E. P. Sparrow, S. Sparrow, W. T. Lamb, R. C. Lamb, and A. E. Lamb, brick manufacturers, Ash, Surrey, under the style of Sparrow, Lamb, and Sons has been dissolved.

The Board of Trade has issued a circular to colliery owners urging them to acquire as much of their timber as possible within the British Isles. With a view to conserving and organising the inland timber resources, a return is to be prepared of pit timber that will be available during the next twelve months.

Lieut.-Col. A. B. Hubback, F.R.I.B.A., of the Public Works Department, Selangor, Malay States, serving in France, who was recommended for gallant and distinguished service in the field in Sir John French's despatch of November 30 last, has been promoted to the rank of Brigadier-General.

Mr. J. H. Drew, the engineer to the urban district council of Wath-on-Dearne, reports to his authority that the cost of labour and materials for road work in Yorkshire is now 12½ per cent. more than it was two years ago. Road materials are 11 per cent. up, manual labour 14 per cent., and team labour 12½ per cent.

At Southampton cemetery, on Tuesday last week, the Belgian Minister (M. Paul Hymans) unveiled a monument in the form of a crucifix set on a rugged base of granite, which has been erected over the graves of Belgian soldiers who died from wounds at hospitals in the district during the early stages of the war.

Mr. Cornelius James Pictor, of Fogleigh, Box, Wilts, member of the late firm of Messrs. Pictor and Sons, quarry owners, Box, and for some time chairman of the concern, in which two other companies were amalgamated, who died on February 22, aged 73, left estate of the gross value of £148,855. He gave £400 for Christmas gifts for the deserving poor of Box.

At the church of St. Mary, Bathwick, one of the most beautiful in the city of Bath, on Tuesday night in last week, a fire broke out in the gallery, which was burnt through in places, while the flames spread to the roof. A stained-glass memorial window and some frescoes were destroyed. The damage is estimated at several thousand pounds, covered by insurance. The many valuable pictures in the chancel escaped injury except from smoke.

Thursday being the 1,207th anniversary of the death of St. Aldhelm, to whom the Saxon church at Bradford-on-Avon, Wilts, is dedicated, a brass memorial tablet was unveiled in that edifice bearing the following inscription:—"This little church of Saxon times, for centuries forgotten and converted to secular uses, was recognised and restored to the service of God through the learning and care of a notable Wiltshire antiquary, William Henry Rob Jones, M.A., F.S.A., canon of Salisbury, and from 1851 until his death, 1925, vicar of Bradford-on-Avon."

A meeting of the Leith School Board Employment Agency Advisory Council was held on Friday. In reports of sectional committees it was stated that at present a marked and growing shortage of apprentices existed in all the building trades, and that in the painting and decorative trade there had been for several years past a growing dearth of apprentices. In the engineering trade, on the other hand, no difficulty was experienced in getting apprentices, and in many firms waiting lists of applications existed.

At the annual meeting of the Tynemouth Cathedral Union held in that city last week it was reported that the large sum of £13,662 8s. 9d. had been raised through the instrumentality of the Union, for the maintenance of the fabric and services of the Cathedral Church since the year 1829, an average sum each year of £664 19s. 6d. Through a generous gift of £400, "in memoriam, J. H. M.," the nucleus of a Cathedral Repair Fund had been established, and by the efforts of Mrs. Arthur Tremayne, a sum of money had been raised for the completion of the memorial to Bishop Wilkinson of two more canopies for stalls in the choir.

A "grace" will be offered to the Cambridge Senate on Friday, throwing open the first and second M.B. examinations and examinations in architectural subjects to women. The Masters of Jesus and Pembroke will oppose the proposal.

A new picture palace in Duncannon Gardens, Belfast, will be opened shortly. The architect is Mr. F. T. Waddington, Birley Street, Blackpool, and the builders are Messrs. Henry Lavery and Sons, Ltd., Cambridge Street, Belfast.

The *Irish Builder*, in its current issue, announces that nearly all the well-known builders in the city of Dublin are employed in pulling down and clearing away the debris from the ruins in Sackville Street and the adjoining thoroughfares, and some have already been promised the work of rebuilding demolished premises.

Mr. Robert Anderson, J.P., who was a member of the Glasgow Town Council for twenty years, died at his residence in Pollokshields on Monday. Mr. Anderson, who was seventy years of age, was head of the firm of Messrs. J. and R. Anderson, painters and decorators, and for a time was president of the Glasgow Master Painters' Association.

The Seale-Hayne Agricultural College for Devon, which has been built at Newton Abbot as a result of the bequest made by the Right Hon. C. Seale Hayne, who represented Mid-Devon from 1885 till his death, has just been opened for the training of women students in farm work. The architects are Messrs. W. H. Mitchell, Son, and Gutteridge, of Portland Street, Southampton, whose design was selected in competition in July, 1911.

At the meeting of the Manchester Consistory Court, on Friday, the Chancellor was asked by the vicar and churchwardens for a faculty in respect of St. Mary's Church, Eccles. The Earl of Ellesmere proposes to present a chapel in the church. He also proposes to present to the parishioners eighty-five pews in the south gallery and the Breton tomb in the chapel, the condition being that the parishioners shall keep all in repair. The Chancellor said the faculty would be granted subject to the matter's being submitted to the patron of the living, the Lord Chancellor.

Proposals have been made to the Government officials at Melbourne that the technical schools of Victoria be used to train returned soldiers in the manufacture of by-products from the waste timbers of the State. A great amount of wealth, it is pointed out, is going to waste in the timber areas through want of technical knowledge and organisation. With the aid of proper machinery, Victoria might be able to manufacture two-thirds of the wood pulp required for paper consumed in the State, while chemicals could be made from the by-products.

At the annual meeting of the Metropolitan Asylums Board on Saturday it was reported that the Ministry of Munitions had given directions for the discontinuance of building work at Tooting Bee Asylum, on the ground that the men employed under the contract were required for undertakings of urgent national importance. Mr. W. H. Eeroyd said that it was a question whether national importance would not be better served by keeping such buildings going on. Hardly a man who was stopped at the London County Hall was given work by the Government. The Clerk explained that the men were required for building munition factories, and the matter was referred to the Works Committee.

The North-Eastern Railway Company, which was one of the pioneers in the electrification of passenger lines, has inaugurated the first electrically operated goods service in this country. Electric locomotives, each capable of hauling a 1,400-ton train at a normal speed of 25 miles per hour on the level, are now at work on the Shildon Newport route, which is used to carry heavy mineral traffic between the coalfields of South-West Durham and the blast-furnaces and ironworks of the Middlesbrough district. The distance between Shildon and Newport is 18 miles, and about 50 miles of single track, including sidings, have been electrified. Overhead wires are used, and the current for the locomotives (direct current at 1,500 volts) is collected from the wires by means of sliding "bows." Electricity is obtained from the North-East Coast group of electric power companies. The electric locomotives were designed by Mr. Vincent Raven, the railway company's chief mechanical engineer, and built under his supervision at the railway company's works, Darlington; and the whole of the work of electrification has been carried out under the direction of Messrs. Moz and McLellan.

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the *BUILDING NEWS*, Effingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

Drawings of selected competition designs, important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc.—we have usually far more than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

Telephone: Gerrard 1291.

Telegrams: "Timeserver, Estrand, London."

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## NOTICE.

Bound copies of Vol. CIX. are now ready, and should be ordered early (price 12s. each, by post 12s. 10d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLVI., XLVII., XLVIII., XLIX., L., LX., LXI., LXII., LXIII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXVIII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., XCVII., XCVIII., XCIX., C., CI., CII., CIII., CIV., CV., CVI., CVII., and CVIII. may still be obtained at the same price; all other bound volumes are out of print.

## BACK ISSUES.

Most of the back issues are to be had singly. All back issues over one month old will be charged 6d. each, postage 1d. Subscribers requiring back numbers should order at once, as they soon run out of print.

Handsome Cloth Cases for binding the *BUILDING NEWS*, price 2s., post free 2s. 6d., can be obtained from any Newsagent, or from the Publisher, Effingham House, 1, Arundel Street, Strand, W.C.

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Advertisements for the current week must reach the office not later than 3 p.m. on Tuesday. Front-page advertisements and alterations or stop orders for serial advertisements must reach the office by first post on Monday to secure attention.

RECEIVED.—T. T.—W. S. and Son.—M. G. and Co.—H. and Sons, Ltd.—W. and W.—Van A. and Co.—J. H. and Co.—S. and E. Co., Ltd.—W. H. S. and Co.—C. B. and Sons.—O. and Co.—A. Ltd.—C. P. K. and Co.—J. D. R. and Co.

F. S. A.—No.

REV. T. P. H.—Thanks; please send.

WORKER.—You, at any rate, have little to grumble at.

URGENT.—PLEASE NOTE.—To prevent disappointment, owing to restricted and later postal deliveries, it is not safe to wait till Tuesday morning to send us advertisements for the current week's issue. Many reach us after 3 p.m., at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order THE BUILDING NEWS regularly of their newsagent or bookstall. With the present shortage of paper and probable still further rise in its price, it is futile to expect a newsagent to saddle himself or us with surplus unsold copies to oblige chance customers, on which, moreover, he of us have to pay heavy and increasing carriage charges.

## TO ARMS!

### 1ST LONDON ENGINEER VOLUNTEERS.

ORDERS FOR THE WEEK, BY LT.-COL. C. B. CLAY, V.D., COMMANDING.

OFFICER FOR THE WEEK.—Platoon Commander, A. Gerard.

NEXT FOR DUTY.—W. J. A. Watkins.

APPOINTMENT.—Sergeant C. Claydon to be Battalion Sergeant Cook.

SATURDAY, JUNE 3.—Parade at Headquarters 2.45 for ceremonial drill; uniform. Every member is urged to attend.

MONDAY, JUNE 5.—Technical for Sections 1 and 2, No. 3 Company, 46, Regency Street, S.W. Squad and Platoon Drill, Sections 3 and 4, No. 3 Company. Signalling Class and Recruits.

TUESDAY, JUNE 6.—School of Arms, 6-7, Lecture, Company Commander Castell, "Bridging," 7.15. Recruits, 7.15-8.15.

WEDNESDAY, JUNE 7.—Platoon Drill, No. 1 Platoon, No. 1 Company.

THURSDAY, JUNE 8.—Platoon Drill, No. 5 Platoon, No. 2 Company. Shooting for Sections 3 and 4, No. 3 Company, Miniature Range, Recruits, 6-6.45. Instructional Class, 5.45.

FRIDAY, JUNE 9.—Technical for Sections 3 and 4, No. 3 Company, 46, Regency Street, S.W. Squad and Platoon Drill, Sections 1 and 2, No. 3 Company.

SUNDAY, JUNE 11.—Entrenching at Otford, Parade Victoria (S.E. and C. Ry. Booking Office) 8.35 a.m. Uniform, haversacks, and water bottles. Mid-day rations to be carried. Railway vouchers will be provided.

OTFORD CAMP.—On and after Saturday, June 3, there will be a standing camp at Otford. See monthly orders.

MUSKETRY.—For Nos. 1 and 2 Companies, see notice and Tables A and B at Headquarters.

NOTE.—Unless otherwise indicated, all drills, etc., will take place at Chester House, Nos. 1 and 2 and 3 and 4 Sections, No. 3 Company, will in future be known as Platoons Nos. 9 and 10.

By Order,

MAY 20, 1916. MACLEOD YEARSLEY, Adjutant.

The urban district council of Crompton, Lancashire, has applied to the Local Government Board for sanction to a loan of £10,312 for works of sewerage.

The stores belonging to Messrs. T. R. Lester, Ltd., William Street, Cork, lately destroyed by fire, are being rebuilt. The architect is Mr. Arthur Hill, F.R.I.B.A., Cork, and Mr. C. Gieve, of the same city, is the builder.

The Bethnal Green Borough Council will be asked, at their meeting to-morrow (Thursday), to authorise the Public Health Committee to take the preliminary steps for the provision of a municipal dispensary for the diagnosis and treatment of persons resident in the borough who are suffering from tuberculosis.

An extensive fire occurred on Friday night in Battersea at the Corunna Works of Messrs. Holliday and Greenwood, builders and contractors, whose yard off Stewart's Road, Wandsworth Road, adjoins the junction of the L. and S.W. South-Eastern and Chatham, and L.B. and S.C. Railways, and is in close proximity to the furniture depositories of Messrs. Hampton and Sons. The outbreak was first noticed shortly after eight o'clock. Two hours later the fire was well under control, but not before the works and offices, occupying a building recently erected on the site of what had been a stonemason's yard, had been practically destroyed, together with a large amount of valuable material.

# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

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### OUR ILLUSTRATIONS.

Sheffield Telegraph Building, Sheffield. View and plan. Mr. Edward Mitchell Gibbs (Messrs. Gibbs, Flockton, and Teather), Architect.

### Strand, W.C.

Proposed House in Gloucestershire. Mr. Andrew N. Prentice, F.R.I.B.A., Architect.
London County and Westminster Bank, Hythe, Kent. Messrs. Banister Fletcher and Sons, Architects.
House at Macclesfield, Cheshire. Plans, elevations, and sections (working drawings). Mr. Maurice B. Adams, F.R.I.B.A., Architect.
Restoration of the Guildhall, Henley-in-Arden, Warwickshire. Mr. John P. Osborne, F.R.I.B.A., Architect.
Bank at Karachi, India, for Messrs. Cox and Company. Messrs. Hoare and Wheeler, Architects.

## Currente Calamo.

Messrs. Powell and Skues, the well-known solicitors, of 34, Essex Street, Strand, write to the *Morning Post* of yesterday as follows:—"Early in December, 1910, we presented to the Revenue particulars of a conveyance by clients of ours, mortgagees selling in exercise of their power of sale. On the 2nd inst., five and a-half years later, we have received from the Land Values Branch a formal intimation that 'no increment value duty is payable on the occasion of the transaction in question.' Imagine the inconvenience to the parties of the holding up of a reserve to meet a possible claim which might have taken all this time to mature." Here is one instance of the confusion and delay on which we have commented so many times! Can anyone imagine more mischievous interference by a Government Department with the rights of property owners and with the business of the many industries depending on them for existence?

There are but few items of special interest to our readers in the long list of Birthday Honours published on Saturday. The new knights include Mr. A. J. Durrant, M.V.O., the Comptroller of the Supplies Division at H.M. Office of Works, and Mr. Jethro J. H. Teall, who retired in 1914 from the Directorship of the Geological Survey after twelve years as the head of that department. The distinction of C.B., Civil Division, is conferred on Colonel Charles Frederick Close, late R.E., Director-General of the Ordnance Survey; and on Lieutenant-Colonel Norman Mackenzie Hemming, R.E., superintendent of building works at the Royal Arsenal, Woolwich. Among the recipients of the C.I.E. are Colonel William Montague Ellis, R.E., Chief Engineer and Secretary to the Government of Madras, Public Works Department; Mr. Charles Stewart Middlemiss, B.A., F.G.S., F.A.S.B., superintendent, Geological Survey of India; Mr. Robert Egerton Purves, Public Works Department (retired), lately Chief Engineer and Secretary to Government, Punjab, Irrigation Branch; and Mr. Christopher Addams-Williams, Public Works Department, Superintending Engineer, South-

Western Circle, Bengal. Mr. Edouard Gaston Daniel Deville, Surveyor-General of Topographical Surveys for the Dominion of Canada, receives the Imperial Service Order.

Early last week the Committee of the French Senate appointed to consider the Daylight Saving Bill reported against it by five votes to three, their reasons being: first, that it is doubtful whether much practical economy would be affected; and secondly, the certain inconvenience to the working population, especially those who get up with the sun, or before, such as farmers, gardeners, milkmen, and others. The Committee finally stated that "it considered it ill-advised to regulate artificially the lives of persons who go to bed too late at the expense of that portion of the population which already carries out daylight saving." On Saturday the Committee reconsidered its decision and adopted the new version of the Bill submitted by M. Painlevé. The new project empowers Parliament to advance legal time till October 1, and not for the duration of the war. The Bill was to be submitted to the Senate on Tuesday, and, so modified, may possibly have been passed. Here at home the powers that be, having begun by altering the clock, have now taken our holidays in hand. The abolition of Whitsun Monday is in itself a wise and necessary step, but surely it could have been announced before thousands had made their arrangements for the very brief rest which is all most of us—unlike the four-hundred pounders who get three weeks—can take. And as surely whoever is responsible for the threatened infliction of the double Bank Holiday in August cannot possibly have realised the hindrance it will be to legitimate business. The next thing, possibly, will be to "proclaim" two Sundays in one week!

The *Birmingham Daily Post* seems surprised that the Gas Department of that city finds that, instead of saving gas, as a matter of fact the output has gone on steadily increasing, and even on the day the Act came into operation there was an advance instead of an expected decrease. The output on the Sunday naturally is regulated by the demand for gas for domestic purposes. Now that coal is so dear gas has largely taken the place of the

coal fire for the cooking of the household meals, and the maximum pressure on the resources of the department is realised between 12 and 1 o'clock, that being the time, generally speaking, for the preparation of the Sunday dinner. The clock was advanced an hour on the morning of the 21st; but instead of the minimum pressure occurring between twelve and one, it was between one and two o'clock, thus suggesting that the housewives as a rule had adhered to the old familiar time instead of adopting the new summer time. Curiously, too, the consumption of gas on that Sunday established a record and not a reduction. Between the hours of eleven and two o'clock, the hours when the principal domestic consumption takes place, the output of gas amounted to 6,077,000 cubic ft., as compared with a normal quantity of about 5,000,000 cubic ft., and a maximum of 5,396,000 on the Sunday before the Daylight Saving Act was in force, and which up to that time was the record consumption for the three hours!

The difference between a freehold and a leasehold house, though it has been known to the law for centuries, is not always, even now, clearly understood, at all events by the ignorant and foreigners. The whole of our curious leasehold system has, indeed, often been condemned. Proposals for compulsory enfranchisement have been made, but never adopted, owing to the many difficulties. There exist ways of enfranchising leaseholds, but they are so costly and cumbersome as to be rarely used. Another thing which many do not grasp is the power of the court to decree the specific performance of a contractor to the buying or selling of land or a house. In the recent case of *Musgrave v. Kane Chong* the two points cropped up together. There was a great fight over the facts which need not here be gone into. But the judge held that the defendant, a Chinaman, had signed a contract with the plaintiff to take a lease for fifty years of a house in "Chinatown," Linchouse, at a ground rent of £5 a year, and to pay a premium of £245. When called upon to carry out his contract the defendant refused, and swore that he thought he was buying the freehold with his money. The Chinaman had an English wife who advised him as to signing the contract and

paying a deposit. So the judge found for the plaintiff, and made an order that the contract must be completed, i.e., specifically performed. But as the plaintiff did not press for this, he also let the defendant get out of so doing by the payment of certain damages and costs. The case is of some general interest as showing the great difference between a lease and a freehold, and how easy it may be to confuse the two. It also proves again that, on a valid contract being proved, there is a legal right to claim its specific performance if the plaintiff insists.

We take it for granted that the war has proved the necessity for the Channel tunnel we have always believed in. We shall be surprised if similar impetus is not given to a kindred enterprise by the recent Irish troubles. The late Lord Wolseley once said: "Let us try the effect of a tunnel on the Irish question, and see whether such a description of union might not be more successful in binding together the people of the two countries than was the political Union of 1800." Certainly an Anglo-Irish tunnel would restore in some measure the primitive geographical union that existed between Great Britain and Ireland in the Pleistocene Age, when a valley ran between the two countries where now roll the waters of the Irish Sea. Between the coasts of Wigtonshire on the one side and those of Antrim and Down on the other there lay a loch about twenty-five miles long, and varying from six hundred to nine hundred feet in depth, and this loch, known to geologists as Beaufort's Dyke, still lies beneath the waters of the North Channel. It is beneath this loch that it is proposed to run the tunnel, alternative routes suggested being from Whitehead, in county Antrim, to Port Mora, in Wigtonshire, and from Great Copeland (county Down) and Donaghadee to Port Mora and Portpatrick respectively. The greatest submarine length involved in these schemes is estimated at about twenty-four miles, and the cost at anything between £7,000,000 and £16,000,000. An Anglo-Irish tunnel would shorten the Atlantic route by at least forty-eight hours. It would benefit the Irish cattle trade, for animals are often injured by the sea passage. It would encourage thousands to spend their holidays in Ireland who to-day are solely deterred by the discomforts of the Irish Sea from making acquaintance with the matchless beauties of the Green Isle.

"Although there is a better brotherly feeling at home," the *Journal of the Association of Transcendental Architects* laments that "there is a lack of unity, consequent upon the comfortable man being satisfied with things as they are, content to preach that architecture is an art (which no doubt it is to him). He cares little for the struggling provincial man with a proper training, but who is constantly losing work to the man who has had none. Reviewing the negotiations with a view to amalgamation between the R.I.B.A. and the Society of Architects, the *Transcendentalists* they were defeated by a man who then hit more of the individual

interests (not necessarily personal) of the minority than the good of all. The leader of the party opposed to amalgamation of the two societies spoke slightly of the junior body, and in doing so showed more boldness than wisdom (leaving out the question of good taste altogether) in bringing to an untimely end the arduous task of many months of representatives of both Institute and Society." After some further observations, the *Journal* declares that a "search through works of art, letters or science would fail to show that any members of the opposition had anything to scream about. It is admitted that really great men are always generous and large-hearted. The fact remains that many who have spoken disparagingly of the younger society made use of it whilst it served their purpose. That knowledge is a monopoly of any individual or institution, or that wealth can ever take its place, has yet to be proved. The discord so largely prevailing throughout the world would be effectually nullified by the exercise of the Golden Rule. By such means alone can unity, whether of societies or nations, be satisfactorily accomplished."

#### SAINTS AND THEIR EMBLEMS.

The iconography of the Saints has always had an interest for the cultured, even apart from the religious associations which endear their memory to so many. For with the veneration of the Saint—first, and above all things, Soldier—as vowed in Holy Baptism, and so pledged to lifelong combat against enemies as cruel and unscrupulous as those against which to-day the soldiers of Liberty and Justice are waging the same warfare, there became entwined admiration for the artist and craftsmen engaged to commemorate the memory of such in storied pane or sculptured shrine, adorned and made the record of their lives and achievements by the emblems of the great deeds they wrought, or of their associations with the scenes of their birth, the manner of their martyrdom, or other circumstances which made their lives for ever memorable.

It is true, of course, that the ecclesiologist attaches another and a very high value to the emblems of the Saints. Their history is closed; and those who would suggest emblems for such as have none err, forgetting that the value and usefulness of an emblem consists in the fact that it is, as Mr. Aylmer Vallance reminds us, a prescriptive historical token, belonging to the recognised language of symbolism. The modern mind knows little of the grammar of that language, and when it sets to work to invent new emblems loses itself in the realms of fantasy and affectation. We see this in more than one of the arts to-day. We hunted a week or two since, when noticing the sculpture at this year's Royal Academy exhibition, that as yet little success had attended the efforts of those employed to commemorate the noble dead who are giving their lives daily for us on stricken fields, in the noisome trench, in the deadly mine explosion, or the triply hazardous struggle in mid-air. They have hardly yet caught the inspiration which we think must evoke a fitting appreciation of such heroism—second only, if so, to that which inflamed the Saints.

Of all available helps to realise the coming thereof, and enable those whose task it may be to immortalise our dead,

we can recommend no book more strongly than "Saints and Emblems," by Messrs. Maurice and Wilfred Drake, just published by T. Werner Laurie, Limited, 8, Essex Street, Strand, W.C., at two guineas net. The authors' names are familiar to our own readers as those of the very excellent "History of English Glass-Painting," which we reviewed in our issue of November 22, 1912. They have brought to their present task the same long and conscientious study, seconded by the same painstaking labour, and the result is a very complete and most praiseworthy realisation of the scheme and object of their work. As many know, the recognised exponent of the emblems of the Saints was the late Dr. Husenbeth. Messrs. Maurice and Wilfred Drake have followed Dr. Husenbeth, but have developed his method by inserting the names of places with which the different Saints are associated, and by referring to the printed sources of information where their lives are most fully detailed. Cross references supply first the name of each Saint, and his or their proper emblems, and, secondly, the emblems themselves, following the Saint or Saints to which they belong. But while Dr. Husenbeth's list only included fifteen hundred names, the volume before us contains between four and five thousand.

The labour thus bestowed will be well appreciated by the ecclesiologist and the antiquary. There are, of course, the very valuable twelve volumes by the Rev. Alban Butler, and the fifteen by the Rev. S. Baring Gould, but they are arranged chronologically, and in the majority of cases no emblems are given. The compact and most handy arrangement of this Dictionary, for that is what it is to the artist and craftsman called upon to achieve the proper representation of sacred figures, especially those of the lesser known Saints in the Calendar, can hardly be over-estimated. For such, too, as feel inclined to venture the creation of new emblems, the authors have made a new departure, giving briefly such particulars, in cases where there is no known precedent for the use of an emblem, as may suggest a suitable emblem for identification. For this purpose the period or implements of martyrdom have been specified, and references made to any matters peculiar to the life, descent, teachings, or manner of life or death of the Saint thus dealt with.

The volume is exceedingly well produced and printed. The illustrations are extremely good. Many of them are in colour, rendered in a manner equally free from the crude, harsh tints affected by some illustrators of books of the kind and the flashy, modern-looking colours of the sort found in grocers' almanacks and show-cards and elsewhere—in volumes they spoil rather than adorn. The half-tones, also, are well done. We reproduce one, which faces page 110, and represents St. Remigius of Rheims, taken from a sixteenth century stained-glass medallion in a private collection, formerly in Chartres Cathedral. The Dove is shown bringing him the Holy Christ. We may add that Plates IX., X., and XI. are devoted to some careful and accurate illustration of mediæval ecclesiastical vestments, which are not infrequently inaccurately rendered by craftsmen.

The Appendices deal briefly but adequately with the Patriarchs and Prophets, and the Sibyls, and their emblems, and the Patrons of arts, trades, and professions. Lists are also given of the Patron Saints of various classes of people and things, and of the Saints invoked for protection against diseases and calamities.

Our own appreciation, and it is a very cordial one, of this welcome folio naturally



concerns mainly the architect, the artist, the ecclesiologist, and the craftsman; but there are hundreds of our readers who will do well to enrich their libraries with this volume. The brief histories of the Saints are in many instances extremely interesting, and in some will be found novel by most. As a work of reference by the traveller or tourist desirous of a little more accurate information than the aver-

#### ROYAL SOCIETY OF PORTRAIT PAINTERS.

We miss a few of the usual exhibitors at this year's exhibition at the Grafton Galleries, but the total of exhibits, which number 206, sensibly exceeds that of last year, irrespective of forty-six portrait drawings lent by John Sargent, R.A., which fill the octagonal gallery.

better-tempered than he looks, and to congratulate them both on the success with which Mr. Lavery has given them to posterity, which we venture to hope will learn to bless the union of purpose that solved the long and weary problem of Irish discontent. Mr. Lavery's other portraits are Miss Elizabeth Asquith (63), Miss Irene Vanbrugh (119), Miss Lillah Macarthy (120), and Mrs. Jackson (133).



ST. REMIGIUS OF RHEIMS CARRYING THE HOLY OILS.

age guide-books furnish, and even by the desultory reader, who often improves an idle hour with "Who's Who" or similar brief biographies, it will be found attractive, and not seldom as reliable as some of them. And where legend does duty for history it will not infrequently prompt the wish that it might inspire us in these troublous days with some of the faith and fortitude it brought to those to whom it was gospel.

Mr. John Lavery and the Hon. John Collier divide the honours of the show, the former sending six and the latter five contributions. Mr. Lavery's two portraits of Sir Edward Carson (53) and Mr. John Redmond (55) are life-like, and will attract many visitors, most of whom will be surprised to find that Mr. Redmond is not the stout party with the pronounced beak of the caricaturists, and quite ready to believe that Sir Edward Carson is really

The best of the Hon. John Collier's portraits is that of Mrs. John Moxey (50); the others are Mrs. Leslie Crawshaw Williams (64), Mrs. W. A. de C. King (106), Mrs. Frank Buzzard (107), and Mr. Laurence Collier (124).

Mr. J. J. Shannon, R.A., sends a portrait of Phil May (54), another of Miss Lily Elsie (69), and a third of "Jane, daughter of A. L. Prinsep, Esq." (97).

Of Mr. John Charlton's four subjects,

the most popular will be his portrait of "The Czar" (82), a spirited picture of our noble ally mounted, the often remarked similarity of face and feature to those of King George being very noticeable. The best of Mr. R. G. Eve's five subjects is his portrait of Major-General Sir Alfred Turner (71), who is also painted by Miss Flora Leon (56). Mr. Richard Jack, A.R.A., has a portrait of Sir Robert Chambers, G.C.B. (100), and a second contribution, "Poems" (110). Mr. Hugh Riviere sends three, one a portrait of his wife (60), one of Mr. James Stephens, the treasurer of the Royal Masonic Benevolent Institution (83), and the third of Colonel Colston, V.D. (129).

Mr. Herbert A. Olivier's portrait of Lieut. Warneford (103) will again evoke many regretful memories of that gallant airman. More than usual interest also attaches to his excellent, if small, heads of some of our gallant French friends, including Lieut.-Col. Gammel, A.D.C. to General Joffre (177); General Duparge, military secretary to the presidency (178); M. Perrin (179); Col. Pénelon, A.D.C. to the President (183); M. Poincaré (184), and M. Viviani, the late Prime Minister (185).

Among the rest to mention are Mr. H. Harris Brown's portrait of Mrs. Ernest Taylor (48), Mr. Tom Mostyn's "Marjorie" (51), Mr. George Harcourt's posthumous portrait of Capt. Ian MacDougall (76), one of the earliest to fall in the long list of heroes; Mr. S. Melton Fisher's "Madame Stephane" (77), and Mr. Hugh de T. Glazebrook's "Mrs. Balmain" (94).

Mr. John S. Sargent's forty-six portrait drawings in the octagonal gallery form a loan collection, and the proceeds of their exhibition are to be given to the Arts Fund. They include a good many celebrities, including the Earl of Cromer, the late George Meredith, Earl Spencer, Christian De Wet, Sir W. B. Richmond, Francis Earl of Wemyss, Madame Réjane, Lady Randolph Churchill, and others more or less known in their respective circles.

#### OBITUARY.

Captain William Harold Hillyer, R.E., was killed in action on May 22, aged thirty-five. He was the second son of the late W. J. Hillyer, of Blandford, Dorset, and of Mrs. Hillyer, of Lynceoft, Shortlands, Kent. Educated at Timbury, Eastbourne, and Dover College, he became an architect and practised at 8, Buckingham Street, Adelphi, W.C. At the outbreak of war he enlisted in the Artists' Rifles, and in October, 1914, he received his commission as second lieutenant in a London Field Company. He went to the front in January, 1915, and remained on active service till the date of his death. He was wounded in May, 1915, and was mentioned in despatches in August, and in October of that year was awarded the Military Cross for work done at Hill 60.

Mr. Arthur William Saville, M.S.A., of Dacre House, Arundel Street, Strand, W.C., who died recently at the age of sixty-two, was attired to the late John Saville. He commenced practice in London, in 1884, and was responsible personally and in conjunction with his partner, Mr. William Martin, for the design and erection of a large number of buildings of a public, domestic, and business character in London and elsewhere. The late Mr. Saville joined the Society of Architects in 1905.

A block of business premises has just been erected at Cwma, near Newport, Mon., for the Ebbw Vale Industrial Provident Society, comprising grocery, butchers, outfitters, boots and shoes, with a confectionery department as well as snow-rooms on the first floor, and packing and fitting rooms. The buildings, which have cost over £6,000, and will be opened at Whitstable, have been built from plans by Mr. Charles E. Compton, M.S.A., of Llanthony Road, Newport, Mon.

#### LONDON COUNTY COUNCIL.

At the meeting of the London County Council held yesterday (Tuesday) the Parliamentary Committee reported that the volume and complexity of the laws relating to London are at present very great, and are being added to every year. The committee suggested that to bring about a reform advantage should be taken of the fact that the Council is not promoting any Bills other than the Money Bill in Parliament this year, and of the probability that during the next subsequent years local legislation may remain in partial abeyance. The Acts and parts of Acts relating specially to London which are still on the Statute Book number about 2,500, but the proposal made to the Council yesterday was that for the present only the Metropolitan Management Acts and the cognate provisions in other Acts be dealt with, and that the work shall only be proceeded with as the requisite staff is available.

The Council approved in December last a capital estimate of £4,500 in respect of the doubling of the existing single lines of tramways on the Woolwich route—(i.) in Beresford Street, (ii.) in Plumstead Road, between Beresford Square and Parry Lane, and (iii.) in Bostall Hill, near Woodhurst Road. A very heavy service of cars has to be run on the Woolwich lines to meet the requirements of the travelling public, and the operation of the tramways services would be materially facilitated, the Highways Committee reported, if further doublings were carried out—(i.) opposite the Council school at Bannockburn Road, (ii.) between Riverdale Road and Kashgar Road, and (iii.) between Kashgar Road and St. Nicholas Road. The cost of this additional work, which the committee consider should be undertaken forthwith, is estimated at £2,750.

The return of working-class dwellings built and demolished in the County of London during 1914 shows for the second year a net decrease in such accommodation amounting to 1,370 rooms. It would appear that up to the outbreak of the war there was no indication of a revival in the building of working-class dwellings in Greater London, and there is little doubt, it is reported, that the number of vacant houses and tenements suitable for working-class occupation in the county, and even in the extra London districts, is now small, while in some districts, such as Woolwich, there is a shortage of accommodation.

The Main Drainage Committee reported that Mr. R. W. Tuck, district superintendent in the chief engineer's department, will be retired on a pension after twenty-four years' service, owing to ill-health.

The Parliamentary Committee reported that steps have been taken for the renewal, in the House of Commons, of the Council's opposition to the South-Eastern and London, Chatham, and Dover Railways Bill, with the object of securing the rejection of the powers relating to Charing Cross Bridge.

The Bullcroft Main Colliery Co., of Ardwick-le-Street, are about to build 300 houses in the parish of Owston from plans by Sir Tudor Walters.

At Ebbw Vale, Mon., a block of offices and an extension of the bakery are being built for the Industrial Provident Society from plans by Mr. Charles E. Compton, M.S.A., of Newport, Mon.

Mr. Alexander Grant, who has died at Maryhill, Inverness, in his sixty-seventh year, had been a civil engineer in the Indian Public Works Department for almost thirty years, retiring in 1894. He had rapid promotion in India, and rendered such good services in time of famine, especially in Kashmir, that he received the thanks of the Government of India.

At the last meeting of the Gloucestershire Education Committee, the Chairman, Mr. Hyett, stated that, following the example of the chairman of the county council (Mr. M. W. Colchester-Wemyss) in voluntarily undertaking to act as chief constable, and of Sir Ashton Lister in undertaking to act as county surveyor, during the absence on active service of Colonel Chester-Master and Colonel Sinnott respectively, the Rev. Canon Sewell, chairman of the works sub-committee, had offered to carry on the work of the committee's architect and surveyor (Mr. R. S. Phillips) whilst he was at the front.

#### COMPETITIONS.

CLOUGH, NEAR HLOBEACH.—A meeting of the Clough Church Committee and sidesmen has been held to consider plans in connection with the erection of a new church at the Clough. Two sets of plans were considered, one submitted by Mr. Wilfrid Bond, L.R.I.B.A., of Grantham, and the other set by Messrs. Cowieson. The first plan was for a brick structure, at a cost of £700, and the second for an iron building priced at £270. In each case the seating accommodation was for 150. Whilst a preference was felt for the brick structure, it was considered that owing to the difficulty of obtaining money it would be best to accept the plans and specifications submitted by Messrs. Cowieson. The contractors stated that from the day they secured the foundations the church could be completed in twenty days. It is hoped that the church will be ready for use by the beginning of October next.

#### STATUES AND MEMORIALS.

ST. PETER'S, ROME.—The monument to the late Pope Pius X. about to be erected in St. Peter's will occupy the inter-columnal space near the choir chapel, opposite Antonio Pollaiuolo's fine bronze monument to Innocent VIII. (1492), with its seated figure of the Pope grasping a spearhead. A competition was instituted for the design, with the result that when the concursus was closed over a month ago, some forty models had been submitted by the chief sculptors and architects of Italy. Apparently there was no foreign competitor. The Pian cardinals selected from their own number a small commission to examine the designs and select the most appropriate, and the commission, at the head of which was Cardinal Merry del Val, decided to call in the assistance of a body of artistic experts to help them in their deliberations. There seems to have been, says the correspondent in Rome of the *Tablet*, no hesitation in the choice, both artists and cardinals selecting the model presented by the sculptor P. E. Astorri, and the architect T. Di Fausto. Two details of the design refer to the work of Pius X. in crushing Modernism and in restoring the discipline of the Primitive Church in giving Holy Communion to the young, but the main (the essential) feature of the design is the colossal figure of Pius X. himself. The statues of the Popes in the Basilica almost invariably represent them in the act of blessing or as kneeling. Pius X. is portrayed as having just risen from his throne, and with outspread hands and uplifted face offering himself as a holocaust to appease the divine judgment on mankind. But the design is by no means universally approved.

#### PARLIAMENTARY NOTES.

REBUILDING SACKVILLE STREET, DUBLIN.—Mr. Asquith, asked by Mr. R. McNeill whether, with a view to the prevention of vested interests being created which would interfere with the rebuilding of Sackville Street, Dublin, as part of an architectural and town-planning scheme worthy of the position and natural features of the thoroughfare, the Government would take immediate steps to acquire the whole area in order to be in a position to control the rebuilding, replied: The Home Secretary is proceeding to Dublin to discuss this with other questions. I can make no statement until after his return.—Mr. MacCallum Scott: Is the right hon. gentleman aware that the worst of all architectural effects are produced under Government-controlled schemes?—Mr. Asquith: That is a matter of opinion and experience.

The death is announced of Mr. James Richardson, who for many years held the position of borough surveyor of Stamford and surveyor for the county of Rutland.

At Cambridge University it is officially stated that the proposed graces relating to admission of women to medical and architectural examinations have been withdrawn in order that reports on the subject may be presented to the senate by the boards concerned.

The following have been elected for the ensuing year of office by the Transvaal Architects' Association:—President, Mr. E. H. Waugh, M.S.A.; Vice-Presidents, Messrs. D. Ivor Lewis, M.S.A., and McCubbin; Council, Messrs. Burton, M.S.A., Beardwood, M.S.A., Voale, M.S.A., Howden, M.S.A., Sinclair, M.S.A., Solomon, M.S.A., Dowsett, M.S.A., Powers, and W. Reid.



## Our Illustrations.

### THE "SHEFFIELD TELEGRAPH" BUILDING, SHEFFIELD.

The building illustrated is the new front to the extensive old buildings of the editorial and printing departments of this newspaper. The portico, at the corner of High Street and York Street, leads directly to the counting-house, 100 ft. by 27 ft. wide, and by an elevator and staircase to the offices over the counting-house and shop; and it leads also to a general printing department, in a light and lofty basement, under the counting-house. The frontage to High Street, on the ground floor, is developed by providing sale shops. The exterior of the whole building and the interior of the portico and the counting-house are faced with white faience. The design furnishes an interesting study of many of the difficult problems of town building. The frontage to the principal shopping street in the city is too valuable for any other purpose, and one of the difficulties has been to design modern shopfronts as an integral part of an office building for an important newspaper. Another problem resulted from the control of the heights to which buildings are permitted to be erected, the ancient rights of light of the properties on the opposite side of the street, being very valuable, had to be considered, as the abandonment of such rights could not be negotiated. Hence the broken skyline, the setting back of the upper stories, and the pyramidal form of building; even the tower had to be kept within the angle of 45 degrees. A further solution had to be found as to making the best of the prominent position of the site, which is directly opposite the end of Fargate, and is seen from the town-hall at the other end. This vista and the pyramidal form of building were both suggestive of a tower to mark the *Sheffield Telegraph* building, which, however, at the same time, should be kept subsidiary to that of the town-hall. The tower is not on the exact axial line of Fargate, but the portico and the centre line of the counting-house are very nearly so. Owing to the winding of the lines of streets, the tower is also conspicuous from the other end of High Street and from Church Street. The ends of the building being seen above the roofs of the adjacent buildings, are faced with faience and treated architecturally in harmony with the front. The site is awkward in shape, with an acute angle at the corner of the streets. The directors of the company desired a building in the English Renaissance style. Hence the design as a group of buildings, each rectangular on plan, or apparently so, with a circular portico connecting the group and rounding off the sharp angle, and again a need for the tower as the dominant feature. The erection of an important semi-public building consistent with compliance with the modern requirements of a town architecture is at all times very interesting as a dominating problem for an architect. The general contractors were Messrs. George Longden and Son, Ltd.; the faience is by the Hathern Station Brick and Terracotta Co., Ltd., and the architects are Messrs. Gibbs, Flockton, and Teather, of Sheffield. Mr. Edward M. Gibbs, F.R.I.B.A., has taken a prominent share in designing and carrying out the undertaking.

### A PROPOSED COUNTRY HOUSE, GLOUCESTERSHIRE.

This house, of which this Royal Academy water-colour view represents the garden court side, facing the west, was intended to have been built in Gloucestershire, but has been postponed owing to the war and the consequent increase in price of materials. The quantities have already been taken out, and the cost is estimated at £2,500. The building is to be of local stone, and the roofs covered with stone slates; while an endeavour has been made to impart an architectural feeling in harmony with the traditional style of the locality. The entrance from the road is on the east side, connecting with the hall and garden porch. Also on the ground floor are the public rooms, drawing-room, dining room, small extra sitting-room, and kitchen offices. On the first floor are five bedrooms and two dressing-rooms, bathrooms, and two

large servants' bedrooms in attics, boxrooms, etc. Mr. A. N. Prentice, F.R.I.B.A., of Hastings House, Norfolk Street, Strand, W.C., is the architect.

### LONDON COUNTY AND WESTMINSTER BANK, HYTHE, KENT.

These new banking premises, having a southern aspect, have recently been erected in the High Street of Hythe, on the site of the old premises. The bank has a frontage of about 90 ft., and comprises on the ground floor a large central banking-hall, 26 ft. by 32 ft., from which the strong-room, manager's room, waiting-room, and lavatory for the clerks are immediately accessible. There is a private entrance for the manager on one side of the entrance-hall, from which he has access to the bank through the waiting-room from his own private residence. The portion of the premises occupying the entrance east of the site has been designed for and is utilised as offices. The upper floors contain the living-rooms and bedrooms of the manager. The premises are designed in the Late Georgian manner, in keeping with the architecture of this old Cinque Port. A Portland stone base is provided along the front, and at each end are gates leading to the manager's private entrance and to the garden, which occupies the whole space at the rear of the premises. The facade generally is of 2-in. bricks, supplied by Messrs. Thos. Lawrence and Sons, of Bracknell, cherry red being employed for the pilasters and plum colour for the main walling. A feature in keeping with the local buildings is the provision of teak shutters to the first-floor windows. The flues have been gathered into tower-shaped chimney stacks, and the roof is covered in green Westmoreland slating in graduated courses. The floors are fire-resisting. The mosaic paving was executed by Messrs. Farmer and Brindley. The premises, as the view shows, occupy a somewhat picturesque position, with the Late Georgian town-hall on the west and the old parish church on the northern heights beyond. The general contractors for the bank were Messrs. Dove Bros., and the whole of the work has been carried out from the designs and under the superintendence of Messrs. Banister Fletcher and Sons, architects, 29, New Bridge Street, London, E.C.

### HOUSE AT MACLESFIELD.

The accompanying sheet of working drawings is generally self-explanatory, but it may be noted that the fall of the land dictated the contrivance of the house so as to avoid a needless amount of making-up, besides sparing a good deal of brickwork. Care was taken at the same time to adapt the internal contrivance for economic service and labour-saving in home administration. The accommodation otherwise is of an ordinary kind, set out with regard to the prospect, and considering also the points of the compass. Particular wishes and individual requirements had to be co-ordinated, and provision made for fine old pieces of furniture. An uncommonly long garden at the rear of the site forms a private approach to the premises from larger grounds adjacent to it. Hence the back elevation of the house towards the north-west is conspicuous from a distance between the trees. The balance of the square bay windows supply a symmetrical appearance. Fine views towards the Derbyshire hills are obtained in this direction. A garden stairway approach is provided from the drawing-room back bay, and easy service for garden tea on the lawn is obtained from the kitchen by way of the arched doorway beyond the tool-place. The floor space of the kitchen is made the most of by placing the working table in a window recess. This contrivance, owing to difference of level below the ground floor, allows of sufficient head room for a cycle place next the garden door. A dry and cool store, or mistress's "lock-up," is situate between the kitchen and the back parlour, with a northerly aspect. The materials to be used are 2-in. varied colour "rusticated" red bricks for facings to the hollow walls, and dull sanded red tile hanging above, with strawberry roofing tiles from Congleton. The surround to the front entrance is to be in mottled red stone from Alton, simply de-

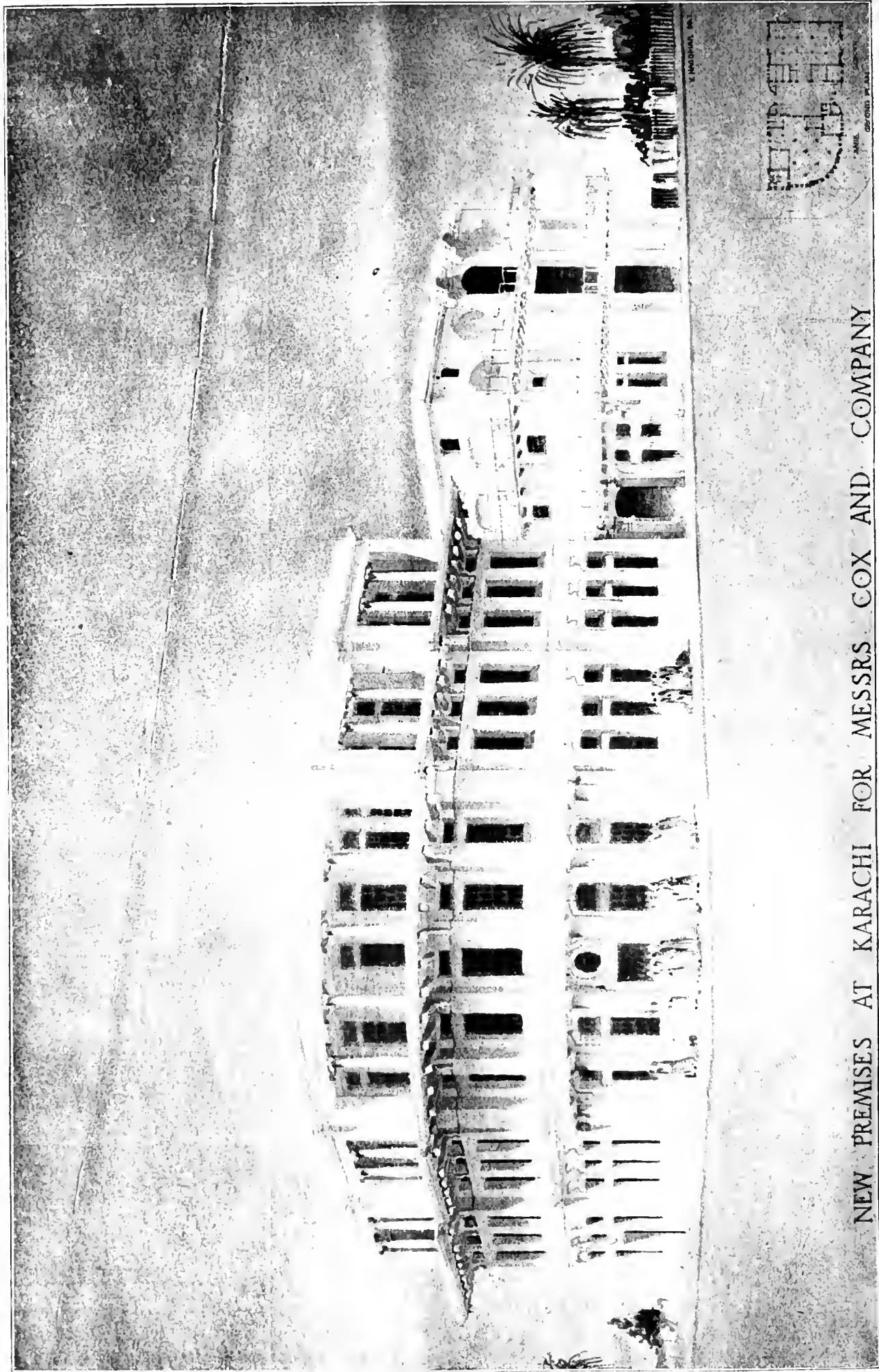
tailed, with a hooded arched pent, carried by carved wood trusses. The front door is of elm, with small piercings, glazed with ruby glass, to sparkle by night as a guide to callers. Pitch-pine for the main-ports of bays; also for the staircase and flooring. Owing to the unsettled state of the building trade and rising prices, as well as labour shortage during the war, the erection has for the present been postponed. The quantities were prepared by Mr. Fred Fowler, of Macclesfield. Mr. Maurice R. Adams, F.R.I.B.A., of London, is the architect. A sheet of details showing the working out of some of the chief parts of the house will appear shortly.

### RESTORATION OF THE GUILDHALL, HENLEY-IN-ARDEEN, WARWICKSHIRE.

The general public till lately did not know that the ancient little town of Henley-in-Arden possessed such an institution as a Guildhall. Though the venerable building stands on its original foundations, the fact of its existence had been quite lost to general cognisance, because it had been disguised out of all recognition and occupied in sections as squalid tenements; consequently all outward semblance of its original dignity and artistic merit had been lost. The lord of the manor of Henley rediscovered this architectural treasure of the Middle Ages, and he has restored it for the use of the township. The hall has been divided for a long while into a number of small shops or cottages, so that the beautiful oak timbering was completely hidden by lath-and-plaster or whitewash. For many years in private possession, the fabric was thus maltreated, though it stands so conspicuously close to the tower of Henley parish church, as seen in the illustration. The Guild House has lately been thoroughly repaired and renovated, and the land at the back is now cleared of some uninteresting modern additions, in place of which the old-world garden appears again. On the ground floor the main rooms are occupied as a branch office of Lloyds Bank. Here we note the very massive construction of the fourteenth-century timber work, which is of interest, and can be seen to a lesser scale in the smaller rooms at the south end. A staircase from which the enclosed courtyard and north side of the ancient parish church come into view gives access to the upper chamber or Great Hall of the Guild. Here can be studied the noble Medieval roof timbers with shaped and chamfered wind-braces, under which the elders of Henley met for many generations. The walls also show the thick vertical timbers, with narrow inter-spaces of plaster. The old room is decorated with the arms of the successive lords of the manor in so far as they have been traced from remote times to the present day. A complete list has not been found obtainable, and their connection with the Guild was more or less remote. As the castle of Peter de Montfort has perished there remains no more suitable place in which to emblazon them. The building thus restored to the town in its original form, has become probably the chief feature of antiquarian interest remaining in the charming old-world little town of Shakespeareland. Our illustration is reproduced from a water-colour drawing by Mr. John P. Osborne, F.R.I.B.A., of Birmingham, under whose direction and personal care the restoration has been carried out.

### NEW BANK AT KARACHI, INDIA.

These premises for Messrs. Cox and Co. are to be built on a reinforced concrete raft with indented bars. The same system of construction will be employed for the piers, floors, and roofs. The walls will be built with local stone from the Drigroad quarries. The interior decorations of the bank will be of white marble, and all the woodwork is to be of teak. The site selected is close to the harbour. The ground floor of the larger building will be used for banking purposes, the first floor for Messrs. Cox's shipping agency, and the top floor for offices of various kinds. The godown will be used for storage of goods only. Messrs. E. B. Hoare and M. Wheeler, of Portman Street, W., are the architects.



NEW PREMISES AT KARACHI FOR MESSRS COX AND COMPANY

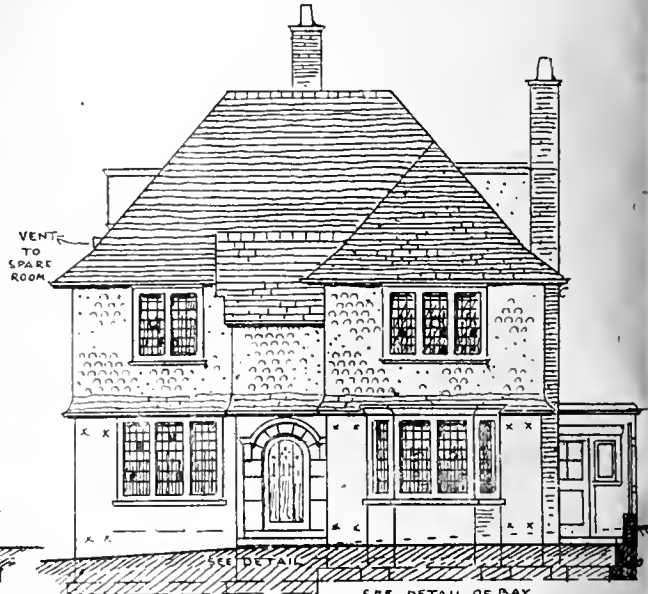
BANK AT KARACHI, INDIA.—Messrs. Hoare and Wheeler, Architects.

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PROPOSED HOUSE LIME GROVE  
MACCLESFIELD

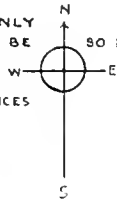


FENCE AVENUE FRONT, W

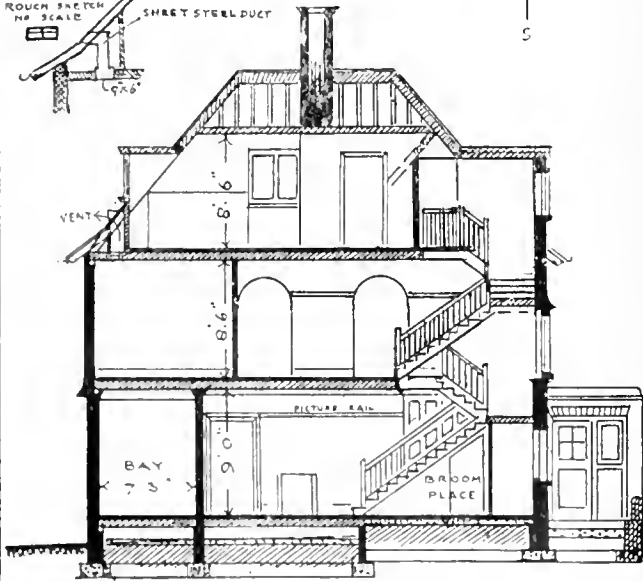
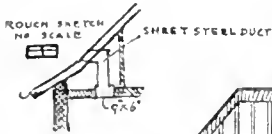


LIME GROVE FRONT, S

NOTE GROUND LINE LEVELS ARE ONLY APPROXIMATE BUT BELIEVED TO BE SO FAR CORRECT

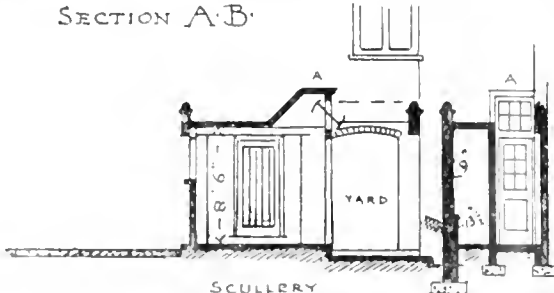


x x WALL HOOKS BUILT-IN FOR CREEPERS LATTICES



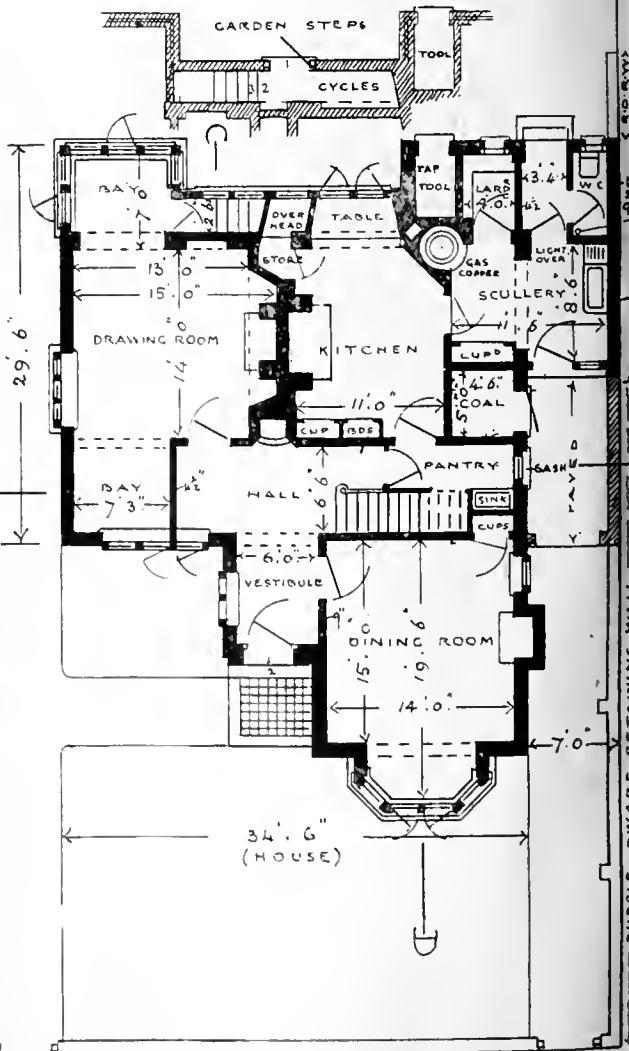
SEE DETAILS OF STAIRCASE

SECTION A.B.



SCULLERY

SCULLERY LIGHT



THIS RUBBLE DWARF WALL AND OAK GATES NOT IN CONTRACT BUT RE

GROUND PLAN

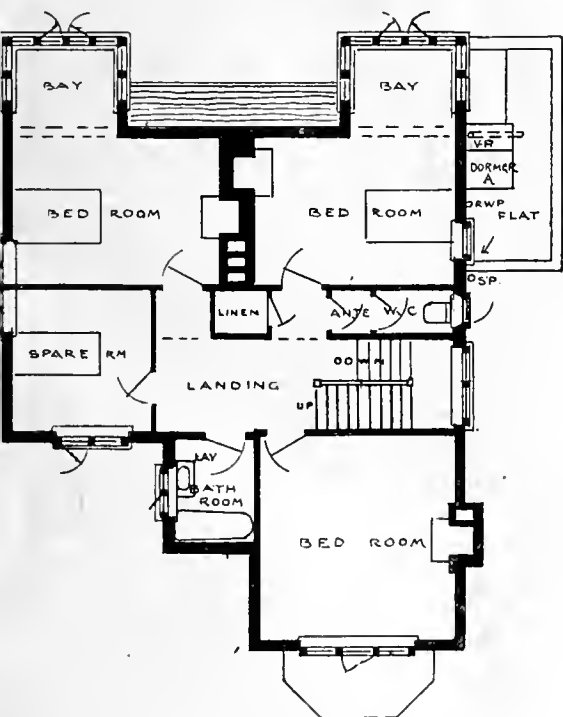


GARDEN FRONT N

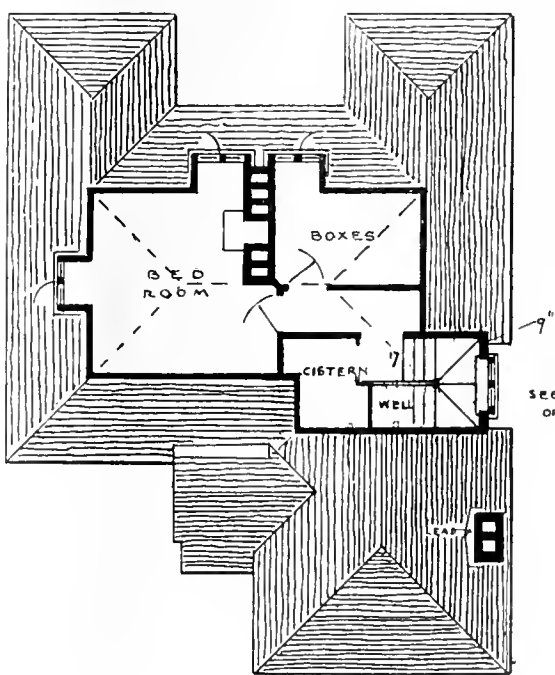
SEE DETAILS OF THIS PART



EAST SIDE FLANK



FIRST FLOOR



TOP FLOOR

SEE DETAILS OF STAIRS

SCALE OF FEET



WALL ON E SIDE IS

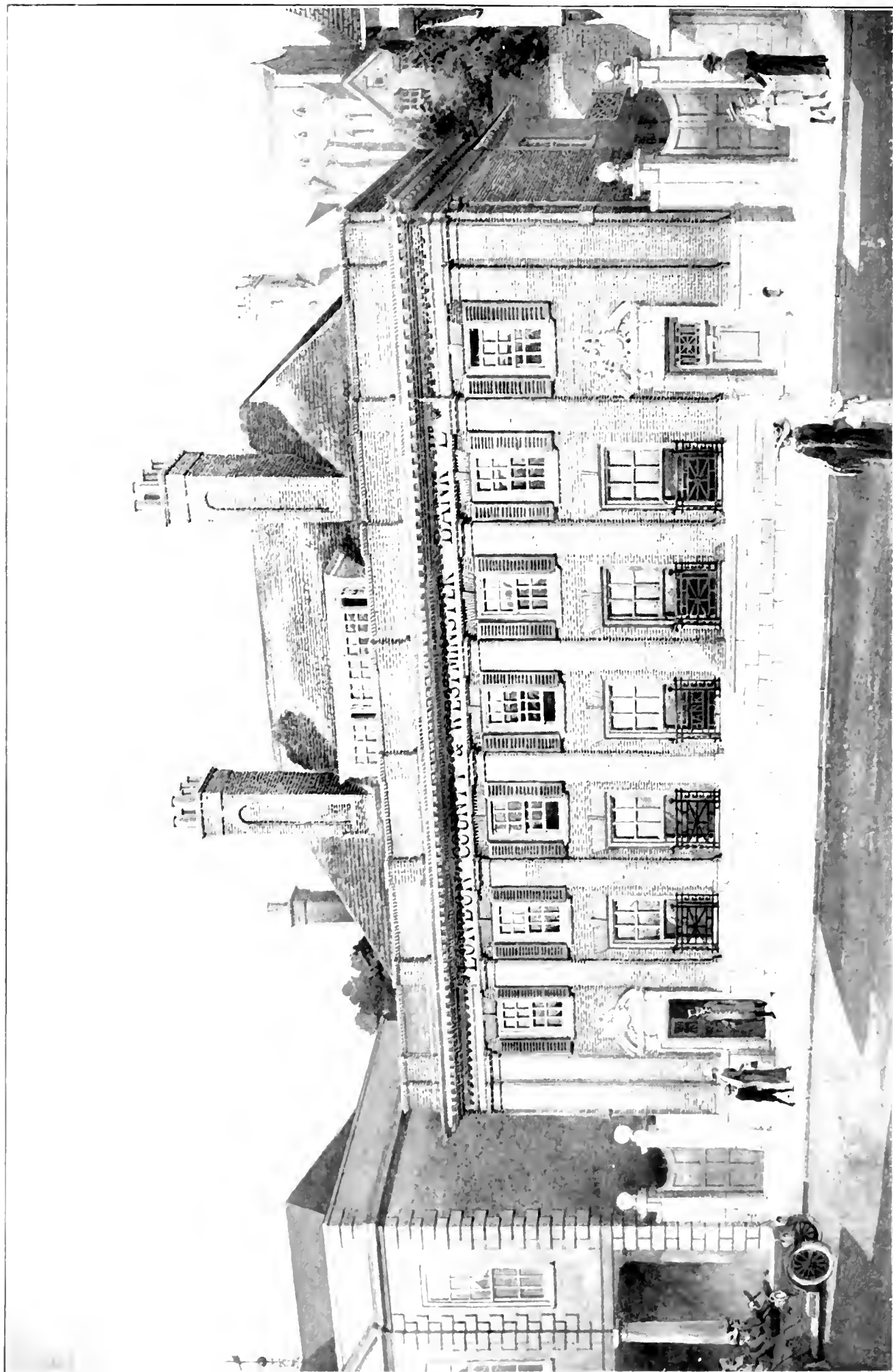
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MAURICE B ADAMS FRIBA ARCHT  
BEDFORD PARK CHISWICK LONDON  
QUANTITIES BY MR FRED FOWLER







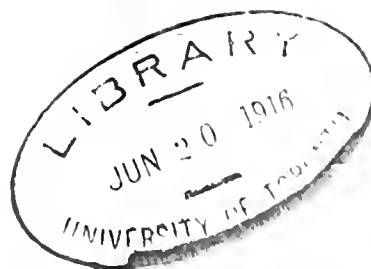


LONDON COUNTY AND WESTMINSTER BANK, HYTHE, KENT.—Messrs. BANISTER FLETCHER and SONS, Architects.

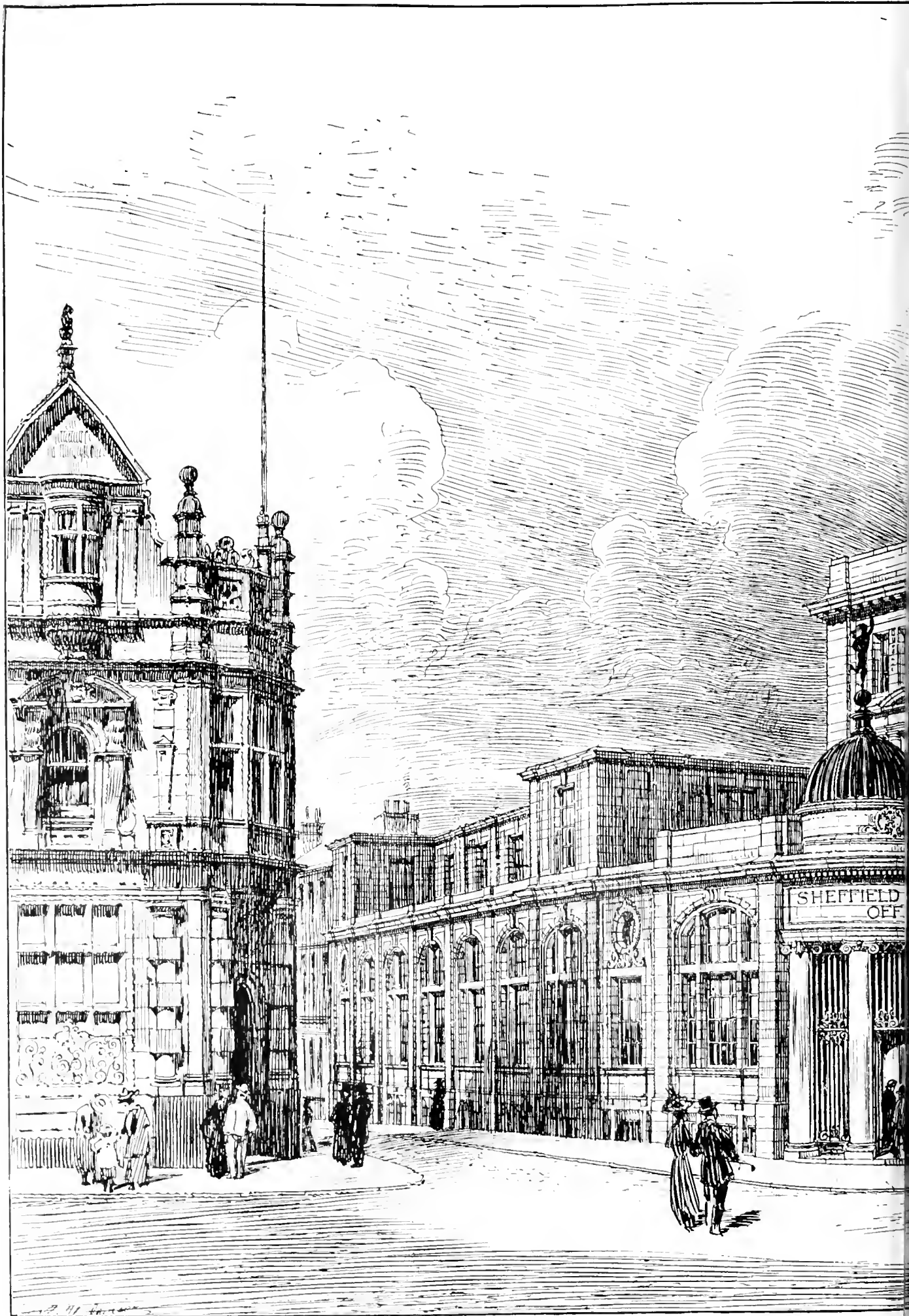


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"SHEFFIELD TELEGRAPH" BUILDING, SHEFFIELD.—Mr. EDW.









RESTORATION OF THE GUILDHALL, HENLEY IN ARDEN, WARWICKSHIRE.  
Mr. JOHN P. OSBORNE, F.R.I.B.A., Architect.

## BEARING VALUE OF SOILS FOR FOUNDATIONS.

A Special Committee of the American Society of Civil Engineers appointed "to Codify Present Practice on the Bearing Value of Soils for Foundations, and Report Upon the Physical Characteristics of Soils in Their Relation to Engineering Structures," submitted the following report to the recent annual meeting.

### (1) THE GENESIS OF SOILS.

In the development of the earth's crust, rocks have been formed by the aggregation and consolidation of various minerals. Those rocks in their turn have been subjected to physical disintegration and chemical decomposition by atmospheric and other natural agencies, called rock-weathering. Some of the residual products of rock-weathering are the unconsolidated clays, silts, sands and gravels, etc., which cover the surface of the underlying rock and are here defined as the soil. Thus, the soil has the same mineralogical constituents as the rocks from which it has been derived, except where chemical action has leached out the less resisting minerals.

The relative predominance of physical disintegration or chemical decomposition will vary with the locality. For instance, under the influence of moisture and heat, chemical decomposition will predominate in humid

are: (1) Hydration, (2) carbonation, (3) oxidation, and (4) solution. These reactions usually cause an increase in volume of, and the disintegration of, the rock minerals. As an increase in temperature also increases the solvent power of water, a warm, moist climate is most favourable to the chemical decomposition of rocks; whereas the mechanical processes of soil formation are more noticeable in dry and cold climates.

### PHYSICAL COMPOSITION.

From the physical point of view, the particles of soil vary in size and shape. The sizes of particles may be grouped tentatively in five primary grades as in Table 1; but each may be arranged in coarse, medium, and fine subdivisions.

Separations into uniform size-grades are made by the wet sifting process. Sheet-metal screens having circular openings have been adopted tentatively, and are used for the coarse grit grades and larger. Hydraulic methods are used for separating the medium grit grades and finer.

### SHAPE OF PARTICLES.

The particles of soil may have flat, sharp, or normal, angular, rounded, or corroded surfaces. As the largest diameter of a soil particle determines the size-grade in which it will be placed, it is evident that the shape of the particle will have considerable influence; for example, if a shot was flattened, the size of

the magnitude of any physical measurement of soil changes varies with the water content. The extent of the variation is influenced by the texture, that is, fine-texture soils are more influenced than those of coarse texture; furthermore, there is a critical water content at which the physical properties of soil attain either a maximum or minimum value.

The percentages of moisture in soils are tentatively proposed for classification purposes as follows:—

Degree.	Per centage by Weight.
Humid.....	0% to 5%
Damp.....	5% to 10%
Moist.....	10% to 15%
Wet.....	15% to 25%
Saturated.....	25% +

### TEXTURE.

Texture refers to the relative proportion of the different size-grades of particles, and is constant. Thus, it is a property that can be used as a basis of classification. Moreover, it is an important factor on which many physical properties depend. According to texture, soils are arbitrarily separated into such classes as sandy, sandy loam, loam, clay loam, clay, etc. The presence of larger fragments of rocks and variations in the shape of particles will modify the textural class. The number of textural classes that shall be made must depend on the differences in physical properties, as influenced by the size-grades, and the extent to which it is desired to carry the divisions.

The larger textural classes may be subdivided, or adapted to any amount of detail, but, as it is probable that other soils may be found of similar mechanical composition, it is here emphasised that other properties than texture must be considered for a satisfactory classification.

### STRUCTURE.

Structure refers to the arrangement of the particles, and is a variable property. It may be loose and porous, or compact and impervious.

The structure of a very coarse sand or gravel cannot be materially altered. The particles, in the main, function individually; and they have a sufficient mass so that they fit together in such a way as to give about the same degree of porosity.

Clay soil, on the other hand, may fit very loosely or be very compact; the particles may be largely separated and free, or may be gathered together in groups which function together as a single large particle. There may be large and small pores, as when, in a puddled clay, the mass has been mixed together in contact with water; then the spaces between the large particles are filled in successively by smaller and smaller particles, and a very dense and impervious mass results. This condition is aimed at by the ceramist, who desires such cohesion of this product as will render it rigid and impervious, that is, a thoroughly puddled condition.

### CLASSIFICATION OF SOILS.

In any study relating to natural objects, a satisfactory classification is always difficult to arrange, because the various elements merge into others by almost imperceptible gradations. No sharp lines or divisions exist, and such as are made must be more or less arbitrary. Soils have been variously classified under geological, vegetative, chemical, climatic, and tirely satisfactory from an engineering point of view. Yet, accurate information in regard to the nature of soils is so fundamental that classification is necessary for interpreting their characteristics and the final solution of the problems in soil physics. For this purpose, the essential factors that produce differences in soils should be arranged in the order of their influence, and, at the same time, the ready identification of these properties in the field is of the greatest importance. At present it is not practicable to prescribe definitely the limits of particular class groups. Future study and discussion are required to account for difference concerning the materials in any of the groups.

As rocks are the source of the soil constituents, differences in soils may be traced to two groups of factors: First, soil-forming

TABLE 1.

Size.	Grade.	Symbol.	Screens: Diameter of Circular Opening, in Millimetres.		Remarks.
			Passed.	Retained on.	
Shingle.....	Coarse....	Sc	64.0	32.0	Cohesionless material.
	Medium....	Sm	32.0	16.0	" "
	Fine.....	Sf	16.0	8.0	" "
Pebbles.....	Coarse....	Pc	8.0	4.0	" "
	Medium....	Pm	4.0	2.0	" "
	Fine.....	Pf	2.0	1.0	" "
Grit.....	Coarse....	Gc	1.0	0.5	" "
	Medium....	Gm	0.5	0.25	" "
	Fine.....	Gf	0.25	0.125	Limit of porosity = 0.20 mm.
Dust.....	Coarse....	Dc	0.125	0.0625	Limit of coagulability = 0.02 mm.
	Medium....	Dm	0.0625	0.03125	
	Fine.....	Df	0.03125	0.01563	
Flour.....		F	0.01563	—	

tropical regions, where the heavy clay soils occur; and physical disintegration is the dominant process in arid and arctic climates. Consequently, the properties of the soils will vary, although they may be formed from the same kind of rock. For example, the granite rocks of the humid Appalachians of the South form a fine-grained soil, and similar granites of the arid Sierras form a coarse granular product.

### PHYSICAL DISINTEGRATION.

The process of physical disintegration of rock is concerned with: (1) Temperature changes, by unequal expansion and contraction of the rock minerals from heat and cold. A frequent repetition of this action, or a sudden change in temperature, causes the crumbling of the exposed surfaces of the rock. The effect is greatest where the diurnal or seasonal range of temperature is a maximum. The maximum diurnal range of temperature occurs in desert regions, and the maximum seasonal range in northern climates. (2) Alternate expansion and contraction from freezing and thawing the interstitial water in the pores of the rock. (3) The abrasive action of flowing water or wave action, when carrying sediment. (4) The action of the wind, when projecting fine soil particles against rocks. (5) Glacial action in crushing and comminuting rocks into "glacial flour," and the formation of moraines, etc., from rock debris. (6) In a limited degree, by the action of organic life.

### CHEMICAL DECOMPOSITION.

The process of decomposition is largely concerned with the chemical action of water and air. The most important chemical reactions

the hole through which it would then pass would be greatly increased. The presence of flat particles in soils which have been derived from micaceous and other rocks will differentiate the soil from the ordinary soil as indicated by the mechanical analysis.

### MINERALOGICAL COMPOSITION.

The mineralogical nature of the soil largely depends on the rock from which it has been derived, through the mechanical or chemical processes of formation. In the soils of the arid and glacial regions a variety of minerals is usually found; and in the humid regions quartz and the hard minerals predominate. Such soft materials as talc, kaolinite, chlorite, and mica may exercise a decided influence on the cohesive and other physical characteristics of soils, especially in landslides or soils under pressure, and in the presence of considerable moisture.

### CHEMICAL COMPOSITION.

Chemically speaking, the soil varies with its mineral constituents; but differences in chemical composition have a very limited physical effect, and may be practically disregarded, except, possibly, to distinguish between calcareous, alkaline, ferruginous, or siliceous soils.

### PHYSICAL PROPERTIES.

The physical properties which have the most important influences in soil classification are (a) water content, (b) texture, and (c) structure.

### WATER CONTENT.

It has been shown by Cameron and Gallagher, in laboratory investigations, that

material; and second, the processes by which rocks have been changed into soil.

With reference to differences in soils which are due to the soil-forming material factor, these depend on the kind of rock from which the soil has been derived. This would lead to a classifying of soils as granite, sandstone, shale, slate, marl, marble, or limestone soils; but, as has been pointed out, the same kind of rock does not always give the same kind of soil, so that this one factor is incomplete in itself.

In connection with the second factor—the processes of formation—soils are classified as sedentary soils, which are derived directly from the degeneration of the underlying rock, and transported soils, which are derived from unconsolidated material and transported since it was broken down. These may be further sub-divided into colluvial (gravity-laid), alluvial (water-laid), æolian (wind-laid), and glacial (ice-laid). The different agencies in the transportation of soil material determine to a large extent its character.

The system of classification to which attention is here invited is largely based on differences in the physical properties of soils.

water, whether laid down by rivers, lakes, or oceans. They include river alluvium loess, and adobe in part, estuarine clays, salt marsh and swamp deposits, sea beach sand, etc.

(e) Æolian or wind-laid soils are formed by the transportation, sorting, and depositing of soil material by wind. They include sand dunes, of lakes and sea shore, loess and adobe in part, volcanic dust, etc.

(f) Glacial or ice-laid soils are formed by pulverisation, transportation, mixing, and depositing of soil material by glacial action. They include glacial drift, till or boulder clay, morainal deposits, etc.

#### (2) WATER CONTENT.

The water content of soils, when determined as "moisture equivalent," or by evaporation, in percentage of the weight of a unit volume, is recognised as the second important factor in the division of soils.

#### (3) SPECIAL CONDITION.

This includes a group of properties, any one of which may be used as the basis for the third factor in the division of soils.

with the view of discovering its weaknesses. Nevertheless, it is believed that it is the proper basis on which any soil classification must be formulated.

Table 2 shows the classification proposed.

The study of the physics of soils includes a certain amount of laboratory investigation, and your Committee having found that the procedure in use by agronomists is not satisfactory, it became necessary to undertake much experimental and original work. A great deal of time and expense has been devoted to these studies, which include: the sizes, gradation, and mineralogical composition of soil particles; the proper and best form of screen; the development of inexpensive apparatus for field and laboratory use for soil analysis; the theory and design of centrifugal elutriation methods, etc., etc. This work has not progressed sufficiently to make a report at this time. Developing standard methods for laboratory procedure is necessarily quite expensive and time-consuming, so much so that your Committee was obliged to curtail its work on account of the exhaustion of the funds available. In this connection your Committee expresses a deep appreciation

TABLE 2.—SYSTEM OF SOIL CLASSIFICATION.

Divisions.		The Soil.											
Factors.		Sedentary.					Transported.						
Group.	Derivation of material.	Residual.				Cumulose.	Water-laid or Alluvial.			Gravity-laid or colluvial.	Ice-laid or glacial.	Wind-laid or aeolian.	
		Igneous rocks, etc.	Sandstone, quartzite, shale, slate, etc.	Limestone, marble, etc.	Unconsolidated, marl, clays, sands, gravel, etc.		Alluvial (streams).	Lacustrine (lakes).	Marine (oceans).				
						Peat, muck, and swamp, in part, etc.	Recent alluvium loose and adobe, in part, etc.	Marsh and swamp, terrace and beach deposits, etc.	Salt marsh, swamp deposits, sea beach sands, estuarian clays, etc.	Talus and cliff debris, hillside accumulations, etc.	Morainal material, drumlins, boulder clay or till, drift, etc.	Sand-dunes, loess and adobe, in part, volcanic dust, etc.	
Series.	Water content.												
		Humid	0—5%										
		Damp	5—10%										
		Moist	10—15%										
		Wet	15—25%										
		Saturated	25%										
Phase.	Specific conditions.												
		Structure											
		Mineralogical	Porous, impervious, etc. Micaceous, talcose, etc. Calcareous, alkaline, ferruginous, silicious, etc.										
Class.	Texture.												
		Shape of particles.	Flat, sharp, or normal, angular, rounded, corroded surfaces, etc.										
		Physical composition.	(Quantitatively fixed.)										
		Fragments of rocks.	Sandy, silty, etc.										

Type is the combination of Group, Series, Phase, and Class.—

Example—Group = Residual  
Series = Moist  
Phase = Micaceous  
Class = Clay

Describing a residual, moist, micaceous clay.

#### (1) SOIL-FORMING MATERIAL AND PROCESSES.

The soil-forming material and processes of formation are here understood as the broadest basis in the physical division of soils. The sedentary and transported soils are recognised as representing the first factor in the division of soils.

(a) Residual soils (formed in place) include all those produced by the decay of the soil-forming material from distinctly consolidated rocks, and which decay has progressed so that large bodies of soil are derived therefrom. These are sometimes referred to as granite, etc., soils.

(b) Cumulose soils have been formed in place from the accumulation of organic matter. Their engineering significance is quite limited.

(c) Colluvial or gravity-laid soils are formed by the accumulation of soil material by gravity without the appreciable co-operation of any other force. They include cliff and talus debris, and accumulations on hillsides and undulating uplands, etc.

(d) Alluvial or water-laid soils are formed by the sedimentation of soil material transported, sorted, and deposited entirely by

These properties may be:—

(a) Mineralogical.—When the physics of the soil are affected by the mineral constituents:

Or as of a calcareous, alkaline, silicious, or ferruginous nature.

(b) Structure.—When open or porous; compact or impervious.

#### (4) TEXTURE.

The texture of the soil material is recognised as the fourth factor in the division of soils. The percentages of size-grade limits have yet to be quantitatively determined.

The names proposed for the foregoing factors in the division of soils are as follows:

- (1) Source of soil material .....Group
- (2) Water content .....Series
- (3) Special conditions .....Phase
- (4) Texture .....Class

The combination of these factors will determine the type, which is the unit of soil classification. The soil type may be defined as including all that soil material which is approximately alike in source of soil material, moisture content, special condition, and texture.

Your Committee does not consider that this is the final classification, but it is submitted

for past support and encouragement by the Board of Direction, without which the work already accomplished would have been impracticable.

The death is announced, in his seventy-seventh year, of Mr. Thomas W. Binnian, whose family have for four generations been builders and contractors in Kidderminster.

New premises for the Prudential Assurance Company have been formally opened at Stockton-on-Tees. The plans were by Mr. Paul Waterhouse, M.A., V.P.R.I.B.A., of Holborn, and the general contractors were Messrs. R. T. Smith and Son, of Darlington.

In a Parliamentary answer to a question, Mr. Acland says that large quantities of timber blown down in the recent gales have been bought or are subject of negotiations by the Home-Grown Timber Committee, but they cannot undertake to deal with small or scattered lots.

The South-Eastern and London, Chatham, and Dover Bill, which provides for a clumsy method of strengthening and rendering still more unsightly Charing Cross Railway Bridge, was read a third time and passed the House of Lords on Thursday. It now has to run the gauntlet in the House of Commons.



### PROFESSIONAL AND TRADE SOCIETIES.

**ARCHITECTURAL ASSOCIATION OF IRELAND.**  
The following resolution was passed at a meeting of the committee, held on the 31st ult.: "In view of the large amount of impending architectural work in Dublin, the committee of the Architectural Association of Ireland desire to call the attention of architects in practice and assistants to the register which is kept at the association offices. This register, under the present abnormal conditions, they have decided to throw open free of charge. Every effort will be made to assist practising architects and assistants at the present juncture." Applications should be addressed to the Hon. Secretaries, Architectural Association of Ireland, 15, South Frederick Lane, Dublin.

**LIVERPOOL ARCHITECTS AT DENBIGH.** A pleasurable outing was enjoyed by members of the Liverpool Architectural Society on Saturday afternoon, when, by the invitation of Mr. T. Taliesin Rees, F.R.I.B.A., of Liverpool, the architect of the buildings, they paid a visit to the North Wales Sanatorium in Denbighshire. The party was headed by Mr. Percy Hinde, the president of the society, and Mr. Richard Holt, the hon. secretary, and included in the band of excursionists were the Mayor of Birkenhead (Mr. James Merritt), the contractor for the buildings, and the Mayor of Wallasey (Mr. Sidney Dawson). The visitors found the new institution, which is to form part of the memorial of Wales to the late King Edward VII., in a state approaching completion and awaiting but the finishing touches to be ready to receive the first batches of consumptive patients about the beginning of next August. Accommodation is provided for 220 patients, men, women, and children, and later this will be extended to provide for 250 persons. The completed scheme will cost about £40,000, which will be borne by the Welsh National Memorial Fund of about £250,000.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A business meeting of the Royal Institute was held on Monday afternoon at 9, Conduit Street, London, W., the chair being occupied by the President, Mr. Ernest Newton, A.R.A. The following candidates for membership were elected: Fellows (six), George Reginald Farlow, associate; Charles Edward Varnell, as scribe; Edward Cratney, licentiate; Gilbert Henry Lovegrove, licentiate; Brian Alfred Poulter, licentiate; and James Thomson, licentiate, city architect of Dundee. Associates eleven: Cyril Cliff Cheek, Henry Colbeck, James Simpson Fyfe, Charles Henry Gale, Ernest Geo. Claid Edgar Hill, James Vincent Hill, Clarence Spencer Pictou, Herbert Thompson Ramage, James Wilfred Rough, and Gilbert Vinden.

**ROYAL ARCHITECTURAL INSTITUTE OF CANADA.** The general annual assembly of the Royal Architectural Institute of Canada will be held at Quebec, Que., on Saturday, September 9, 1916. At the Canadian architects will be invited, and a good attendance is expected. F. H. G. Russell, Winnipeg, Man., president; Abide Chénier, S. Beaver Hill Square, Montreal, Que., hon. secretary.

**THE SOCIETY OF ARCHITECTS LODGE OF FREEMASONS.** Fifty per cent. of the members of this lodge are on military service. The senior warden, Major Ingles, R.F.A., has been at the front twice, and the junior warden is engaged on aeronautical work, and is neither can undertake the duties of worshipful master for the next year, the position has been offered to and accepted by Mr. F. J. Eadie, a founder, and treasurer of the lodge since its formation, and a past master of long standing in the craft.

**SOCIETY OF ARCHITECTS' EXAMINATIONS.** Seven candidates sat for the qualifying examination for membership of the Society of Architects in April last, and two for the graduation examination. The following sat for the examinations: Membership: John L. Carrigan, Northern, 97, Redwood Avenue, Leamington. Graduateship: Alexander G. Hammond, Student, 16, Terrace Road, Broomfield, Arthur James Stafford, Bushfield, Fairview, Dublin. The Council of

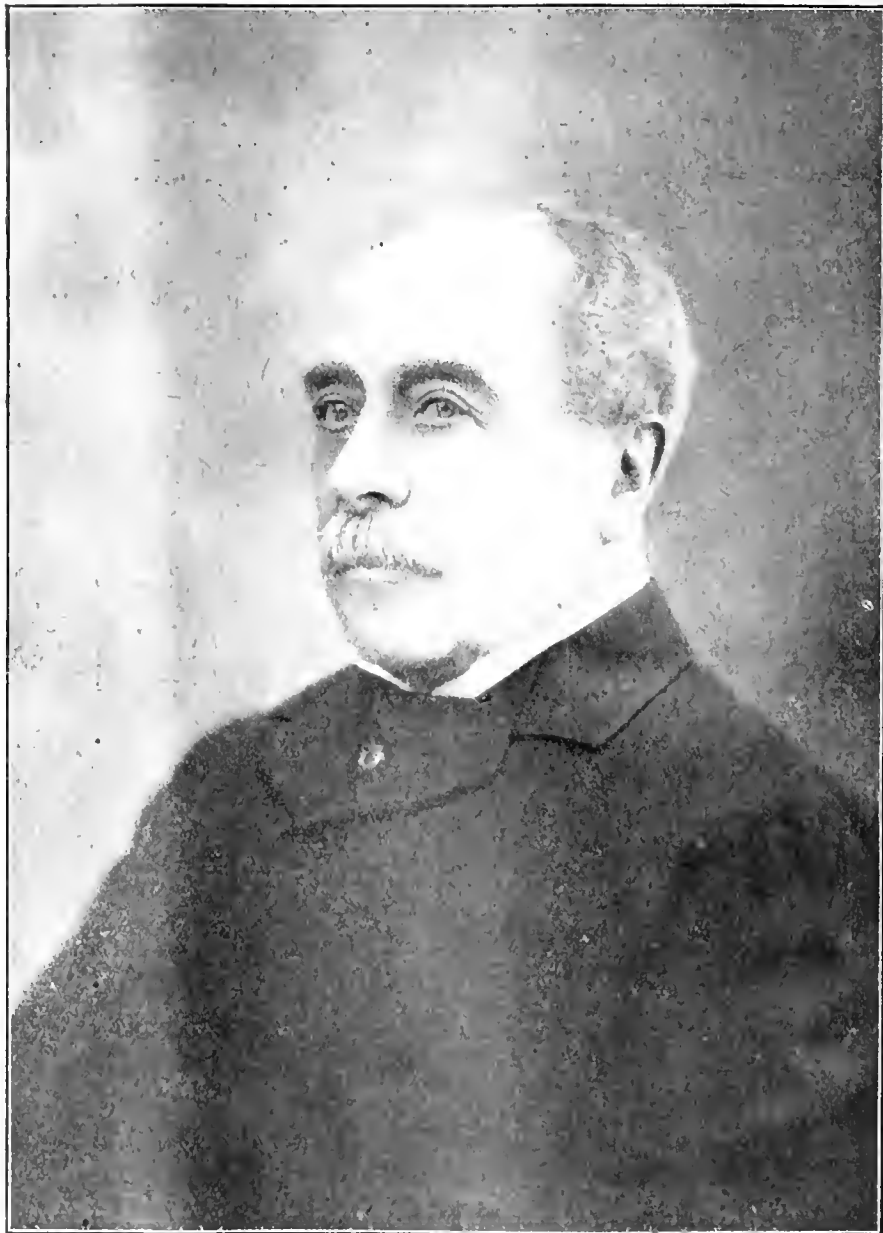
the Society have decided that for the present the examinations shall be held once a year, instead of twice. The next examination is fixed for April, 1917.

#### CLARIDGE'S ASPHALTE CO., LTD.

The annual general meeting of Claridge's Patent Asphalt Co., Ltd., was held at the company's head office on Tuesday, the 30th ult., when the report of the year's trading

business that Claridge's have enjoyed of recent years.

The contracts that the company have at present in hand include new Secondary Schools, High Street, Sydenham; University College, Dublin; new Labour Exchange, Dublin; Llanon Reservoir, South Wales; Town Hall Buildings, Sheffield; Sheffield Telegraph Building (illustrated in this issue); Jessop Hospital, Sheffield; Charterhouse Telephone Exchange, etc., as well as a large



MR. R. T. WILKINSON.

was submitted to the shareholders. The accounts showed the company to be in a very satisfactory condition, and the business in hand a good increase on previous years, a large number of Government orders being in course of execution, whilst on private and public works the company's material was being largely used in increased quantities.

The meeting was noteworthy in one respect—regretted in a way that it was the first occasion for many years on which the late secretary, Mr. R. T. Wilkinson, was not present, owing, unfortunately, to failing health.

He, however, enjoying a well-earned rest after no less than sixty-six years' service in the employ of the company in which he succeeded the late Mr. John Farrell as secretary in 1894. The company's interests are now well represented by Mr. F. J. L. Robertson, the present secretary, whose energy is reflected in the large increase of

number of munition factories, the details of which, for obvious reasons, cannot be mentioned.

The death has occurred of Mr. John Martin, public works contractor, Dunfermline. Mr. Martin had executed many important water, drainage, and road contracts for public authorities.

Mr. Thomas Wood, assistant to the surveyor and water engineer to the Tetbury Urban and Rural District Councils, has been appointed surveyor to the Amesbury Rural District Council in place of Mr. Haxham, resigned.

Mr. A. Dryand, the county surveyor of Surrey, has reported to the county council that during the past year  $4\frac{1}{4}$  miles of main roads were resurfaced at a cost of £15,560. During the present year it is proposed to proceed with further resurfacing of important roads at an estimated cost of £14,000, towards which a grant of £10,000 will be made by the Road Board.



## Engineering Notes.

**NORFOLK HIGHWAY BRIDGES.**—The highway bridges at Coltishall, Saxthorpe, and Thurning, which were destroyed during the disastrous floods of the autumn of 1912, have just been rebuilt for the Norfolk County Council in Mouchel-Hennebique ferro-concrete. The new structures have been constructed from the designs and under the superintendence of the late Mr. T. H. B. Heslop, M.Inst.C.E., the county surveyor, whose resident engineer was Mr. G. H. Hodgson, Assoc. M.Inst.C.E. The contractor was Mr. Roland J. May, of Norwich, and working drawings of the ferro-concrete construction were prepared by Messrs. L. G. Mouchel and Partners, Limited, of Westminster. At Coltishall the new bridge over the River Bure has a span of 40 ft. and a width of 19 ft. between parapets, the superstructure being linked by three arch ribs and a continuous deck. At Saxthorpe on a higher reach of the same stream the newly constructed bridge has a length of 84 ft. and a width of 18 ft. 8 ins. between parapets. It is carried on seven girder spans supported on ferro-concrete piles. Five miles higher up the same river is Thurning Bridge, which is only 33 ft. in length, with a clear width of 18 ft. 10 ins. Here a girder span with a cantilever projection at each end has been adopted. Bridges of more modest dimensions and of the same character have been constructed at Skepton, Blackwater, and Heveningham, the river spans being 25 ft., 25 ft., and 21 ft. 6 ins. respectively.

## Building Intelligence.

**WINNIPEG.**—Work is in progress in the first of the warehouse sections of the twelve-story premises about to be erected for the Timothy Eaton Co., of Toronto. From floor to ceiling the basement is 18 ft. in height; ground floor, 20 ft., which is equal to two stories in an ordinary office building; the second and third floor, 18 ft.; the next five, 17 ft.; and the balance 16 ft. The scheme comprises a series of connected structures, twelve stories in height, replacing an existing nine-story building. When complete it will take in the whole area of the city block between Graham and St. Mary's Avenues, Donald and Hargrave Streets. Two bridges, 3 ft. from the ground and nine stories high, and sundry tunnels under streets, will connect the buildings. The work is to be done in units, with the entire scheme extending over a period of eight or ten years. The whole proposition will involve an expenditure of about \$6,000,000.00. The plans and specifications for the building were prepared by Messrs. Graham and Burnham, architects, Chicago. The general contract for the warehouse was awarded to Carter-Halls-Aldinger, Limited, for \$600,000.00, and the Dominion Bridge Co. was awarded the steel work for \$200,000.00.

### TRADE NOTES.

Reli asphalt concrete is to be used for paving the yards of the New Munition Colony houses.

A meeting of the creditors of the Easton Lift Co., Ltd., is called for the 15th instant at the Express Works, New Cur, S.E., at 3 p.m.

Messrs. E. H. Shorland and Brother, Limited, of Falsworth, Manchester, are supplying their patent exhaust roof ventilators for shell factory now in course of erection for His Majesty's Government.

Under the direction of Mr. W. Ralph Low, A.R.I.B.A., Boyle's latest patent "Air Pump" ventilators have been applied to Messrs. the Hoffmann Manufacturing Co.'s extension to their premises at Chelmsford.

Owing to the rainy seasons in most hot countries, as much care is required to guard against dampness in buildings as in our islands. At the headquarters of the Commanding Officer at Ballygunj, India, the inner rooms for several years caused much trouble on account of severe dampness. We hear that the trouble has now been overcome with a Puddled cement rendering on the floors and walls.

### LEGAL INTELLIGENCE.

**SUIT AS TO THE WILL OF A WORCESTER BUILDER.** In the Probate Court, Mr. Justice Horridge heard a case last week concerning the estate of the late Mr. James Davies, retired builder, of Bromyard Road, Worcester, who died in October last, leaving a will dated February 12. Plaintiffs were Miss Fanny Davies, Bromyard Road, Worcester, and Mr. Charles Walter Potter, vicar of Worcester, and they propounded the will. Defendants were Messrs. Joseph Davies, Harrow Road, Bournebrook, and Mr. Alfred Davies, Sutton Road, Erdington, and now the suit, said counsel, Mr. Cotes Preedy, was uncontested. After some requests, the residue of the estate, valued at £2,500, went to Miss Fanny Davies.—His Lordship pronounced for the will.

**IN RE J. P. URWIN, MOSELEY.** James Parker Urwin, a builder, of 116, Oxford Road, Moseley, came up for his public examination in the Birmingham Bankruptcy Court on Wednesday. The statement showed a deficiency of £948 15s. 8d. The Official Receiver (Mr. Cully) in his observations pointed out that debtor had traded with a partner in 1900 under the title of Urwin and Fisher, and in June, 1901, the firm executed a deed of assignment under which a dividend of 2s. 3d. in the £ was paid on liabilities amounting to £1,200. In March, 1915, the partnership was dissolved, and debtor continued to carry on speculative building. In March, 1915, he entered into contracts to erect fourteen houses in Gipsy Lane, Stockland Green, and four houses in Marsh Lane, Erdington. Owing to the rise in prices of material and wages caused by the war he was unable to continue the contracts, which were determined last March. Since then he had been engaged by the architects to complete the work as a foreman. He had made a net loss within the last twelve months of £2,000. In reply to Mr. Cully, bankrupt said that during the last twelve months he drew £4 10s. a week for household expenses. Mr. Cully: How do you justify that? You were engaged on a contract on which you knew you were losing money. Debtor: I did not draw any more than it cost me to live. The examination was adjourned until July 24.

**SPENCER, SANTO AND CO. v. H.M. OFFICE OF WORKS.**—This action by the debenture holders of the plaintiff company, a firm of builders, for £97,107, the balance alleged to be due on the contract for building the new Local Government Board offices in Parliament Street, is still being heard by Mr. Pollock, Official Referee, at the Royal Courts of Justice. The foreman of works to the plaintiff company, Mr. Philip H. Patten, the first witness called has again been under cross-examination since Monday in last week. This was closed yesterday (Tuesday) morning, when, by consent, his cross-examination was postponed for a few days, and the evidence of Mr. Francis Ruddle, the manager of the plaintiff company, was interposed. Mr. Ruddle was still in the witness-box when the Court rose yesterday afternoon, and is expected to be under examination for several days.

### TRADE MOVEMENTS.

**CHELtenham.** Mr. C. Doughty, the arbitrator appointed by the Board of Trade, has made his award in a wages dispute in the building trade in Cheltenham. The effect of the award is that plumbers, plasterers, and painters will receive an advance of a penny per hour, making their wages 9½d. per hour in the case of plumbers and plasterers, and 9½d. per hour in the case of painters. Labourers are also given an increase of ½d. per hour (making 6½d. and 7½d. with an additional 4d. per day as war wage). There is to be no alteration in the war wage before May 1 of next year.

Mr. W. Atkinson, Milk Lane, Leeds, is the architect for a new factory being erected in Whitehall, Le. Its cost is upwards of £100,000.

Mr. J. A. Andrews, surveyor of highways under the Skelton Rural District Council, has been promoted to the position of lieutenant officer commanding a sanitary section of the 2nd London.

Eighteen tenders were submitted to the Town and Harbour Commission for the construction of a concrete harbour headwall and crib, part of the harbour development work from Rotherham to Black Streets. It has been decided by the Commission to award the contract to R. Weddell & Company. Some portion of the contract will be let to the Russell Company of Toronto. The whole work, which is to be commenced at an early date, will cost approximately \$250,000.

## Our Office Table.

Major H. Philip Fletcher, F.R.I.B.A., F.S.I., formerly of the 10th or Banister Fletcher and Son, of the Middlesex Hussars, has returned to England on being seconded to the Royal Flying Corps. The major had been attached to the French Navy as Commandant of the British Military Observers who were flying with French pilots in the East. He was awarded the Croix de Guerre in August last for reconnaissance under fire for the first time, and before leaving the French Squadron received it again on two further occasions, once more for work with the Navy and once with the French Army. This entitles him to wear palm leaves and two stars on the ribbon of the order. He is the only British officer thus decorated.

Negotiations regarding the most favourable methods of dealing with the proposed Act for the Registration of Architects in the South African Union have been carried on for some time past between the Cape Institute of Architects and the Transvaal Architects' Association. At a recent meeting of the Association Council the following resolution was passed:—"That this Association considers that the 1912 Bill is the final result of a great labour and experience, and has provided a better basis than the 1903 Act, which has been found defective, and therefore asks the Cape Institute to consider whether it is not practicable to base the draft Bill on the draft Bill of 1912, which we forwarded some little time ago, or, as an alternative, would it not be practicable for the Cape Institute to suggest amendments to the draft Bill of 1912, which we would be pleased to consider." The Cape Institute has appointed a standing committee to deal with matters concerning the draft Act, and Messrs. Harris, Powers, and Veale have been appointed delegates of the association. In order to bring matters to a successful finality, and to prevent one committee upsetting the labours of its predecessors in office, it has been decided, at the request of the Cape Institute, to elect this standing committee as a permanent committee, to continue its duties until the Act has been piloted through Parliament.

In a letter to the *Electrical Review* on the question of economy in coal, Mr. Horace Bowden, the Poplar borough electrical engineer, says:—"Perhaps it has not occurred to the Board of Trade that a very considerable economy in fuel consumption can be effected by a general change-over from the use of gas to electrical energy for illuminating and power purposes. The output of gas per ton of coal varies from 10,000 cubic feet to 13,000 cubic feet, according to quality of coal and the retorts employed. A 66 candle-power burner will consume 4 cubic ft. of gas per hour, therefore one ton of coal will supply light under the most favourable conditions of plant and fuel to 3,250 66 candle-power burners. By employing electricity as the lighting agent, under the best conditions of plant and fuel not more than 3 lbs. of coal per unit of energy supplied need be consumed, therefore one ton of coal will produce 747 units of energy, or 747,000 watts, and 11,318 one watt lamps of 66 candle-power each will give three and a half times the light obtainable from 3,250 66 candle-power gas burners, i.e., by using gas for illuminating purposes 3½ tons of coal are used to every single ton necessary to produce an equivalent illumination by the use of electrical energy, by which 70 per cent of fuel can be saved. By using half watt lamps the proportion of fuel consumed is one to seven."

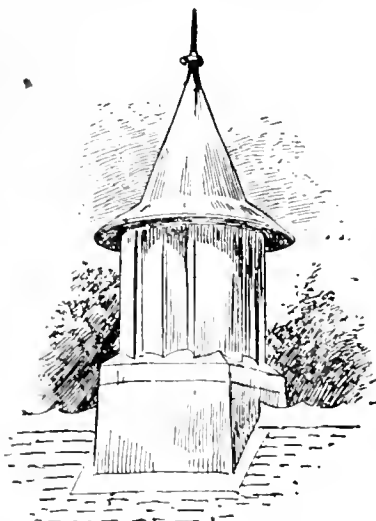
An exhibition of pictures dealing with the war, by Italian artists, will be held shortly after Whitsuntide at the Leicester Galleries, Leicester Square. All the leading artists of Italy are contributing to it, and the exhibition will include a large collection of paintings of the war on the Italian front by the famous artist, Lucio de Padua, who has been authorised by the Italian Government to execute the series. Signor Padua is well known to visitors to Milan as the designer of the magnificent bronze doors of the

cathedral. It is hoped that this exhibition, introducing as it will the work of many able artists hitherto unknown in this country, may help to further cement the friendship which has always existed between the two countries, but which has grown in strength by the comradeship in arms.

### BOYLE'S PATENT "AIR-PUMP" VENTILATOR.

For more than half a century the success of the system of ventilation introduced by Messrs. Robert Boyle and Son has been demonstrated all the world over, enhanced as it has been from time to time by improvements in detail naturally suggested by the wide experience of its inventors.

The latest of these will commend itself to all previous users, and if any, yet unfamiliar



Boyle's latest patent "Air-Pump" ventilator: Design No. 175.

with the superiority of the system, are troubled with the drawbacks it is guaranteed to obviate, we confidently suggest an early trial. It is, every way, a great improvement on the previous patents, being not only a more powerful exhaust, but absolutely free from down-draught, and weatherproof under all conditions.

The ventilators are made of the best cold-rolled close-anealed steel-plates, galvanised and painted, the workmanship being of the highest class, securing the maximum efficiency and durability, the extracting power being double that of earlier pumps. The prices have also been arranged to suit all classes of buildings, so that there need now be no further excuse for doing without ventilation on the score of cost.

The latest design, No. 175, now supercedes design No. 175 illustrated in Messrs. Boyle's previous catalogue, and also No. 175b.

Other special designs of the latest patented "air-pump" ventilator are intended for war buildings of every description, and several thousands have been supplied for this purpose in this country and to the Allied Governments.

The prices of these special designs have been kept very low, in consideration of the character of the buildings for which they are intended, though the high quality of the material and workmanship is the same as that of the more ornamental forms of the "air-pump" ventilator.

Our readers, therefore, who are at present engaged on Government work should in all cases specify Boyle's latest "air-pump" ventilators.

Messrs. Boyle, as founders of the profession of ventilating engineers, have raised the subject to the dignity of a science, and their advocacy of natural ventilation, scientifically applied, has been completely justified by the success that has attended the application of their system to public and other buildings, in many of which mechanical and other artificial methods had previously been tried. An eminent authority has expressed the dictum that natural ventilation is usually a failure unless the construction and arrangement of the out-

lets and inlets are scientifically correct, which requirements, it need hardly be said, are assured with Messrs. Boyle's ventilators, over a million of which have been used, and over 300,000 buildings successfully ventilated in all parts of the world. This speaks for itself. The highest authorities, including Lord Kelvin, have testified to the efficiency of the "air-pump" ventilator, and Messrs. Boyle's system, which gained the £50 prize with diploma (the only prize offered) at the International Ventilation Competition, London, and the highest award, two gold medals, at the International Ventilation Competition, Paris.

### WATER SUPPLY AND SANITARY MATTERS.

**IVYBRIDGE, SOUTH DEVON.**—The new water-works of the Ivybridge Urban District Council were formally opened last week. A reservoir has been constructed on Harford Moor to impound the waters of the Butter Brook, with a line of pipes 3,000 yards in length, running from the reservoir to Ivybridge, and connecting up with the existing mains. The reservoir is 310 ft. long, with a width varying from 200 ft. to 140 ft. The maximum depth of water is 20 ft., and the holding capacity 4,300,000 gallons. The top water-level is 854 ft. above Ordnance datum. The gathering-ground above the reservoir is 418 acres in extent, and consists of rough moorland free from cultivated land and residences. The scheme, which was prepared by Mr. H. Francis, cost about £15,000.

**LEAKAGE FROM WATER-MAINS.**—Writing in the journal of the New England Waterworks Association, Mr. A. H. Smith remarks that the leakage from water-mains is usually surprisingly high. The general opinion of waterworks men is, he says, that from 30 per cent. to 40 per cent. of the total supply is lost by leakage. The leaks may be in the underground mains, in broken or abandoned service pipes, or in faulty domestic fittings. In a test of mains at Medway, Mass., having lead joints and working under an 80-ft. head, the underground leakage amounted to 20,800 gallons in the twenty-four hours, which was equivalent to 1.58 gallons per lineal foot of the joint. As a remedy, Mr. Smith expresses the opinion that either some better material than lead must be found, or more care must be taken in making the joints. He considers that a loss not exceeding one gallon per day per foot of joint under 100 lbs. pressure may be regarded as satisfactory.

The corporation of West Ham have received the sanction of the Local Government Board to the borrowing of £14,850 for electric mains.

Mr. John P. Barrett, of Crossmolina, has been appointed by the Mayo County Council assistant surveyor for North Mayo.

The Lord Mayor will preside at a public meeting to be held at the Mansion House on Tuesday, the 20th inst., at 3.30 p.m., in aid of the funds of the Professional Classes War Relief Committee.

The county surveyor of Antrim, Mr. D. Megan, has reported to his county council that a grant of £500 has been secured from the Road Board on condition that the council expend a sum of £1,200 on road improvement work in the Antrim, Ballymena, Ballymoney, Belfast, Larne, and Lisburn rural districts.

The President of the Society of Architects, Major E. C. P. Monson, F.R.I.B.A., F.S.L., has been appointed honorary acting senior fire surveyor (Central Survey Group), and member of the War Emergency Sub-committee of the British Fire Prevention Committee. Major Monson has also been elected on the council of the Royal Sanitary Institute.

The special committee of the Canadian Dominion Parliament formed to pass the plans for the reconstruction of the Parliament Buildings, Ottawa, have decided to follow the general plans as submitted by Messrs. Frank Pearson and T. O. Marchand, architects, of Toronto and Montreal. There will be a few minor changes, and it is expected that the contract will be let almost immediately for a sum in the neighbourhood of \$1,500,000.

A tablet in memory of the late Rev. A. Jamson Smith, the first head master of King Edward's School, Camp Hill, was unveiled on Wednesday evening at the headquarters of the Birmingham Society of Artists. The memorial, which eventually will be placed in the Camp Hill School, consists of a medallion in bronze with a life-size head in the centre, and bears an inscription. The tablet was executed by an old pupil of the school, Mr. W. C. Midgley, head master of the Aston School of Art.

### TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Effingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Telephone: Gerrard 1291.

Telegrams: "Timeserver, Estrand, London."

RECEIVED.—A. S. A. Co., Ltd.—A. C. Co., Ltd.—T. S. A. A., Ltd.—A. A.—R. A. and Co.—W. J., Ltd.—Dr. W.—H. and Son—C. H. P. and Co.—K. and Co.—B. M. Assoc.—W. O., Ltd.

REMO.—Yes.

C. R. P.—Please send.

K. H. REED.—We cannot answer the first question definitely, but incline to think the adjoining owner's drain is not a sewer. 2. We do not think you can compel the council to make the length of 250 ft., as "C's" road is evidently still a private one.

ASSOCIATE.—Worth consideration. It is worth recalling that some seventeen years ago, shortly after Mr. Howard's book, "To-Morrow," was published, the late Mr. E. L. Garbett sent us a somewhat vigorous denunciation of the plan proposed for garden cities, and an illustration of one on novel lines suggested by himself. We gave it in our other paper, the *English Mechanic*, on p. 185 of the issue of October 6, 1899.

URGENT.—PLEASE NOTE.—To prevent disappointment, owing to restricted and later postal deliveries, it is not safe to wait till Tuesday morning to send us advertisements for the current week's issue. Many reach us after 3 p.m., at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order THE BUILDING NEWS regularly of their newsagent or bookstall. With the present shortage of paper and probable still further rise in its price, it is futile to expect a newsagent to saddle himself or us with surplus unsold copies to oblige chance customers, on which, moreover, he or we have to pay heavy and increasing carriage charges.

Tablets are to be placed in the churches of St. John, Westminster, and St. Mary, Southampton, as memorials of the late Archdeacon Basil Wilberforce.

A pulpit has been erected in Redbourn Church, Herts, to the memory of the late Mr. Harry Miller, who served as churchwarden for many years. It is constructed of oak, and is in harmony with the adjacent screen. It is the work of Messrs. Harry Hems and Sons, of Exeter.

The Australian State Rivers and Water-Supply Commission has approved of a water-supply scheme for Frankston, Mornington, Flinders naval base, and other places in the Mornington Peninsula State of Victoria from the Bunyip River. The cost of the undertaking is estimated at between £100,000 and £170,000.

It was reported to the town improvement and streets committee of Newcastle-on-Tyne Corporation on Thursday that there are 160 uninhabited houses in the city at present. Of this number 82 are self-contained houses, nine are flats, six are houses and shops combined, and in regard to 63 it is doubtful if they are fit for occupation. There are no tenemented houses vacant.

It was recommended by the works committee of the Durham County Council that the salary of the deputy county surveyor be increased to £260 per annum, rising by annual increments thereafter of £10 to £300, but that the question of special remuneration for additional duties rendered during the absence of the county surveyor be left over until the return of Mr. R. E. Brookes, the county surveyor, who is organising road works in the Salisbury Plain area for the Road Board. The report was adopted.

The county council of Waterford recently considered an application from the county surveyor, Mr. J. Bowen, regarding the upkeep and running expenses of his motor-car and railway travelling expenses. Mr. Bowen was appointed at a salary of £400, to be raised to £500 in five years, and it was stated that he had to pay £305 out of that for travelling expenses. The items had been duly checked, and it was admitted by councillors that it was not just to expect Mr. Bowen to meet these high charges out of his salary. Eventually a proposition was agreed to allowing £250 a year for expenses for the period of the war.

# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

### Effingham House.

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F.R.I.B.A., and Maxwell Ayrton, A.R.I.B.A., Architects.
Wall Tomb, Stanton Harcourt, Oxon, and Monument erected by Sir Christopher Wren to his wife in St. Paul's Cathedral, A.D. 1712. From "English Mural Monuments and Tombstones," by Mr. Herbert Batford.
Working Drawings of Details of House to be erected at Macclesfield, Cheshire. Mr. Maurice B. Adams, F.R.I.B.A., Architect.
Business Premises, Folkestone. Mr. L. Scar Infield, Architect.
Board of Education Administration Building, Toronto, Canada. Plans and elevation of the front.

### OUR ILLUSTRATIONS.

St. Mary's Church, Salford, Hull. Interior view, looking east. Mr. Temple Moore, F.R.I.B.A., Architect.  
Longstowe Hall, Cambridgeshire. Archway entrance to forecourt. Messrs. John W. Simpson.

## Currente Calamo.

While thankful for Mr. McKenna's appreciation of the difficulties which have overwhelmed landowners and builders as the results of Mr. Lloyd George's ill-considered finance, it remains a matter of surprise that legislation has been so long delayed in regard to the matter. As we have repeatedly pointed out, it is a question of mere justice to certain individuals who by accident happened to become technically liable to an unintended burden. It is doubtful if anyone could be found to oppose the suggestion that they should be completely relieved. The important principle that Increment Value Duty shall be levied only when there is an actual rise in the value of the bare land has already been conceded, coupled with the promise that there should be legislation with a view to remedying the effect of the Lumsden judgment. This is the really vital matter. If there is in the future to be a duty on the increment value of land, it will be levied on the rise in the value of the land, and not on an occasional profit which may chance to be made by the sale of buildings erected upon the land. So much has already been decided, and we have a definite promise of legislation to make the matter quite clear.

But, as the *Land Union Journal* reminds us, a question which presents a more serious aspect is likely to arise after the war—if, indeed, it has not already arisen—and that is whether the class of legislation of which the Land Duty clauses of the Finance Act of 1909 are a type, is really in the best interests of the community. The chairman of the National Housing and Town Planning Council, Councillor Shawcross, recently prepared two interesting memoranda, discussing housing schemes which he proposed should be placed in operation at the close of the war. In his paper dealing with certain suggestions which he makes for a new housing policy, Mr. Shawcross analyses with fairness a variety of causes which contribute to bring about the existing scarcity of houses, and he expresses the opinion that private enterprise cannot be expected to provide in the future a sufficient number of houses for the probable

increase in the population. In the forefront of these causes Mr. Shawcross places the increasing attractiveness of other forms of investment. We may take these words, "the increasing attractiveness of other forms of investment," as a formula which will cover nearly all the many causes that can be enumerated. Broadly speaking, the discouragement to investment in house property in latter times can be said to be due to two sets of causes. In the one class we may place those which arise from conditions for which no person or group of persons can be blamed, such as the increasing dearthness of money, the augmented cost of building, and the tendency towards a rise in the rates levied for local expenditure. In the other class we may group those causes for which the State is definitely responsible, such as the unnecessarily severe requirements of local authorities in their building by-laws, high charges upon conveyances, the intricacies of the Town Planning Acts, and last, but not least, the effects of the Finance Act of 1909.

It cannot be denied that during the last ten years these two sets of causes have unfortunately been operating in the same direction, namely, that of rendering house-building an altogether unattractive enterprise. After the war the housing question will constitute a social problem of the first magnitude. It is likely that for some time economic conditions will be even more adverse than they have been in the past. There is little, if any, hope that the cost of building will be lower; money is likely to remain dear; rates are not likely to fall after the war. The only direction in which we can look for a diminution of the difficulties is in the removal of legitimate restriction and the initiation of a policy of assistance in place of discouragement by the State. So little is needed in the way of legislation to remedy the blunder that has inflicted such loss and anxiety on so many of us, that it is impossible to think that Mr. McKenna will long delay the attempt to repair the mistake of his impulsive but injudicious predecessor.

Sir Aston Webb's well-reasoned protest in last Sunday's *Observer* against the threatened aggravation of the ugliness of the Charing Cross Railway Bridge is

backed by a recital of the facts which we earnestly hope the general public will read. They are, of course, familiar to our own readers, and are unanswerable. They have been supported by all reasonable men, including, on the one hand, Mr. John Burns, and Mr. A. J. Balfour on the other. The Bill has been opposed by the authorities responsible for the government of London; and yet, thanks to the Lords, the "oxide Behemoth," as Mr. John Burns calls it, is still to straddle across the Thames in all its hideousness, patched and propped up in still more ghastly fashion. All that is asked for at present is the postponement of the scheme till peace permits of the bringing forward of an alternative scheme. Surely London will wake up to the occasion, and insist that the waste of money on the retention of the present monstrosity shall be prevented? Everybody knows that the S.E. and C. Railway Station at Charing Cross is bound to be removed sooner or later to the other side of the river, and that a public bridge providing for the urgent necessities *must* take its place. Everybody, we trust, will irresistibly endorse Sir Aston Webb's demand that we shall hold our hands till the war is over, and then build a bridge wide enough to take the traffic of centuries, strong enough to stand for all time, and beautiful enough to be a joy to succeeding generations.

The 1st London Engineer Volunteer Corps has been formed by the amalgamation of the E.I.V.E. Corps with the 4th Battalion Central London Regiment (Architects' Corps) and the L.C.C. Training Corps. The three corps have now, in accordance with the wish of General Sir O'Moore Creagh, become an engineer corps; with the exception of the Post Office Engineering Volunteer Training Corps (which is composed of Civil Servants), it is the only engineering corps in the metropolitan area. The corps has offered its services under the Volunteer Act of 1863, so that in future all members will be required to take the oath of allegiance. They would only be compelled to come out for service for the purpose of repelling an enemy in the event of an invasion being imminent. Needless to say, if that event should come to pass, business would stop and

every patriotic citizen would assist in driving the enemy into the sea. Men who are not enrolled under the volunteers would not be able to take an active part in the service of the country, but would be liable for non-combatant duties. When called out the volunteers would be soldiers under the Act already mentioned, and would be entitled to pay, etc., as regular soldiers. Should a volunteer find, through change in circumstances, he is unable to continue in his corps, he may, except on actual military service, quit the corps by giving fourteen days' notice in writing and fulfilling a few other simple requirements.

The thirty-fourth annual exhibition of the pictures sent up by the members of the Royal Cambrian Academy of Art was opened to the public on Monday, at the academy's beautiful Elizabethan home at Plas Mawr, Conway. The war has affected the display, and there are this year sixty-eight fewer pictures in the exhibition than in 1915, the heavy railway charges being responsible to a large extent for the falling off. The landscapes include a view of Polperro Harbour, South Cornwall, entitled "The Pathway of Light," by G. H. Swinstead, and among the genre works we notice "News," by the President (C. H. Grundy), "Forlorn," by Lancelot Roberts; and "He Cometh Not," by J. W. Kenworthy. Excellent portrait studies are shown by Miss Nesta Warren and the late Mr. Barnes Boadle.

#### NEW WAR MEMORIALS AND HISTORIC ENGLISH MONUMENTS.\*

[WITH ILLUSTRATIONS.]

As we have already announced, the initiative in the encouragement of the design of fitting war memorials has been taken by the Civic Arts Association. A group of competitions will be held next month, and a public exhibition of the designs will be arranged subsequently in the galleries of the Royal Institute of British Architects, Conduit Street, W. The promoters anticipate a fitting response to their invitation, and we hope their expectations may be amply realised. Comparatively few people have definite ideas about obtaining first-hand simple and artistic schemes worthy of the noble deeds and glorious deaths of those commemorated, and many doubtless will rest content with the inartistic turned out by the score in the purlieus of the depressing cemeteries in the suburbs of our great towns.

For those who desire more worthily to commemorate their noble and dear ones no more useful or suggestive guide can be recommended than Mr. Herbert Batsford's timely book just issued under the title of "English Mural Monuments and Tombstones," being a collection of eighty-four photographs specially taken for the author and introduced by a helpful preface by Mr. Walter H. Godfrey, F.S.A. While collating a long series of standard works of high architectural value during a considerable period, Mr. Herbert Batsford has made it his practice, when travelling through various

parts of England in search of subjects to illustrate in his firm's publications, to be accompanied by his own photographer to record examples of craftsmanship. In this way a goodly assemblage of tombs and memorials has been obtained full of suggestion from within and without the walls of numerous countryside and town churches, including some in the City of London. Most of the records included in Mr. Batsford's series furnish names, ages, and dates, or give an enumeration more or less fulsome of the attributes and earthly careers of the departed. The period chosen has restricted the examples illustrated to the essentially Renaissance style, and this applies to the smaller forms shown of mural tablets, such as lend themselves for present-day needs and popular taste.

Many a quiet churchyard corner is enriched by some perhaps neglected but charming headstone or monumental tomb designed in Carolinian times, or somewhat later, by a competent architect or craftsman, with well-drawn mouldings and elegant details often not unequal in dignity to contemporary work housed in our cathedrals. Even the old plain headstones had their upper edges pleasantly shaped and not infrequently enriched in excellent style, as, for instance, at Newton-le-Willows, in Northamptonshire, or at Chipping Warden, in Oxfordshire. Wood, too, has stood the test of time and defied the vagaries of fashion. These unpretentious, traditional grave-boards, made probably by the village carpenters, were eminently suitable for rural burial grounds, and each district at one time had a special treatment for the tops of the end posts. The earlier kinds were frequently finished after the manner of bench ends, with terminals shaped or foliated in forms cut out of the thickness of the stuff and simply decorated with sunk patterns in geometric settings or carved with emblems in a direct fashion. The turned newel-like tops, so common a finish in rustic counties, are of a later date, the plain ball being also much used subsequently. At Ditchling, in Sussex, and in many another Southdown churchyard we find timber memorials of this sort, infinitely preferable to scaling, bad-weathering stone erections. If made of teak and painted in oils and white lead for the inscription board, similar timber structures would last for a very long while, and always harmonise with their surroundings. Our ancestors frequently diversified the form of their grave-stones and occasionally used double-shaped tops, suggestive of a division below for the records of man and wife, the lettering being equal in importance for either. The names and dates of children interred in the same grave were more casually set out, written on lines running across the entire width of the slab. When the pattern-book supervened and the Gothic Revivalists sought to make monuments "correct" and very "ecclesiastical," meretricious eccentricity came into fashion, and polished granite was accounted emblematic of opulence, and thenceforward atrocities banefully accumulated, the climax being reached with the wired artificial wreaths with beaded flowers introduced from the Continent, cheap as regards money, bad in taste, giving little trouble, but dear at any price.

The artistic excellence of any memorial furnishes its prime claim to attention and its best guarantee for preservation in years to come, though, as Mr. Herbert Batsford adds, "art needs no crutch of this kind upon which to lean." The old examples are almost invariably safe guides, always excluding the fancy for death's head and bones. One of their

chief characteristics is the skill and charm of their lettering spaced out with study as part of the whole design. Many a modern memorial is a failure because the designer forgot to pay due regard to the need of preserving unity of effect. He ignored the setting of his work and the associations of its surroundings. The old men knew better, and their work is subordinated to the architecture. Mr. Batsford's first example is the monument of John Stow, the topographer, from the church of St. Andrew Undershaft (1605). The figure of Stow is not shown kneeling, as was customary where the effigy was not represented in the recumbent attitude of prayer, the hands uplifted on the breast. Stow's figure is seated before a table, busy with his pen. With minor exceptions this is the sole example given in the volume, in which half-length figures of the departed occur. One of the exceptions is the wall tomb from Stanton Harcourt, in Oxfordshire, as seen by our first illustration. We scarcely need to describe the design, which is reproduced not so much for imitation as for its suggestiveness. The portrait busts are well placed, though both individuals appear to be agreeably familiar with the human skull so indicative of earthly decay. The portrait bust of Edward Strong which crowns his monument in St. Peter's Church at St. Albans, Herts, fills in the gap left by the broken pediment terminating the cornice. Strong, it will be remembered, was Sir Christopher Wren's right-hand man during the building of St. Paul's. Our second illustration is from the crypt of that cathedral, and represents Sir Christopher's monument erected after his design to the memory of his wife in 1712. The cartouche is flanked by complete figures of weeping amorini, and the inevitable skull at its base finishes off this spirited if somewhat redundant Queen Anne example. The cartouche will interest all members of the fellow craft, for Wren was a staunch Mason. The 1601 mural panel given by Mr. Batsford from St. Dunstan's-in-the-West heads the set of six chosen to illustrate simple and carved frames. Projecting panels with frames gradually merging back flush with the face of the walling occur in later examples. That shown from Wimborne Minster is a first-rate specimen, with the architecture supported by elaborate scrolls tastefully broad and comely in drawing. The second group to which reference is made is among the first fifty plates, and shows the receding surrounds, which are most interesting. The convex upright tablet from the church of St. Mary-the-Virgin, Oxford, is dated 1736, and has a pleasantly schemed general contour, the whole design being distinguished by much refinement. The third group includes more elaborate architectural compositions with a resourceful variety of treatment. Some have pilastered flankings, and mitred architraves occur in others, or round shafts are used with caps, varied in a few by twisted columns. Among the latter richly ranks a monument figured from St. Dunstan's-in-the-East (1690), showing much originality and fulness of design, though the fascia suffers rather from being over-elaborated in section. The fourth and final series allocated for comparison's sake is devoted to the cartouche variety, with and without surrounding draperies. The prettily sculptured one from Fairford, in Gloucestershire, is perhaps quite the best in this category, and has cherubs on either side, the whole composition coming with propriety under a bracketed pediment canopy set out and suitably detached from the mantlings below. In this association

\* English Mural Monuments and Tombstones, a collection of 84 photographs of Wall Tablets, Table Tombs and Headstones of the 17th and 18th centuries; the subjects specially selected by Herbert Batsford as representative examples of the beautiful traditional types in the English parish church and churchyard, for the use of craftsmen and as a guide in the present revival of public taste; with an introduction by Walter H. Godfrey, F.S.A. Crown quarto, cloth gilt, 12s. 6d. London: B. T. Batsford, Ltd., High Holborn.



of free treatment in mural contrivance we may mention the Hale family tomb at Canterbury (1594), which in point of date slightly anticipates Mr. Batsford's period. In the upper part it has a low relief landscape, with a full-rigged ship surmounting the whole in a very decorative manner, and a detached kneeling figure in front on the cornice. A second kneeling figure comes below in an arched recess. An excellent wall tablet, with a gilt and parti-coloured border, stands in Chippenham Parish Church, Wilts, and there is also an exceedingly refined example, dated 1581, in the south transept of Chester Cathedral. Apart from these instances, which have much in common with the best work of the seventeenth century, Mr. Batsford supplies a diverse and judicious selection, including some finely lettered slabs from the crypt of St. Paul's Cathedral (1694-1708), as well as good table-top or altar tombs from various places. That of Sir Thomas Gresham in St. Helen's, Bishopsgate, if rather previous in point of year 1579 is welcome as a handsome design with heraldic achievements of arms in front and at the ends. The choice of graveyard memorials from Painswick and Tewkesbury Abbey, in Gloucester, and from Witney, Oxon, is also judicious. The last-named place recalls the unusually successful design of an earlier altar tomb in the adjacent parish of Asthall, on the way by road to Burford, where there are more good grave-stones. Other typical examples are to be seen in Hascombe and Thursley Churchyards, in West Surrey, some being as late as 1821. Fairford has notable 1662 specimens with semi-circular arched tops or moulded weatherings. There are also photographs of headstones from Epsom, Northfleet, Broadwater, and Sompting. More are shown from Godmanchester, in Hunts, and from West Tarring, hard by Worthing. Many will be glad to have a copy of this Adam-like scroll-surfaced headstone, with its elegant oval panel bearing the inscription. It is the last subject illustrated and is one of the most likely to be useful for modern purposes. The author has prefaced his plates with a running commaterial commentary on the subjects seriatim as arranged in the classes already referred to. The reproduction of the photographs are good, and the cover of the book is appropriately bound in violet cloth, with gilt lettering. As an educative guide for the designer and craftsman, and not a mere pattern-book, the work cannot fail to be useful.

#### ARTISTIC UNDERGROUND RAILWAY POSTERS.

Sympathising with the disappointment attending the deprival by a despotic Government of our usual delights of Whitsun Monday in the Forest, additionally rendered wretched by the copious showers of tears shed by the ghost of Sir John Lubbock, the Underground Railway Company courteously consoled us with a private view of the excellent series of posters designed for their stations by Mr. F. Gregory Brown, R.B.A., whose recent picture, "Rising Morn," at the Royal Society of British Artists' Exhibition, many will remember.

The general view opens to-day at the artist's studio, 19, Fitzroy Street, W., and will well repay a visit. There are nine large posters, and six panels. All of these are a welcome relief from the vulgar-looking announcements common on some lines which combine a minimum of attractiveness with a maximum of vagueness in regard to locality. A poster designed to attract the multitude to the

sylvan scenes of the charms of which so many millions lived and died ignorant of their proximity and beauty, and of the ease and comfort with which they are now reached from anywhere by the tubes, should rivet the attention on some landmark, easily recognised, and impress the beholder with the adjacent special delights of the district. This has been admirably done in each case by Mr. Gregory Brown, and we are sure his posters will trouble the totals of passengers from every Underground station on that double Bank Holiday in August which we were all anticipating with such impatience.

The nine posters embrace admirable views of Box Hill, Hatfield, St. Albans, Epping Forest, Sewardstone, Lambourne End, Hadley Woods—the big tree there so famous, alas! is no more, but that is the fault of the big blizzard, and not of Mr. Gregory Brown, whose designs were made previously—Waltham Abbey, and Uxbridge. The panels include Waltham Abbey, Barnet, Hampton Court, Uxbridge, and Richmond. Graphic in each case, and never garish, Mr. Gregory Brown has ensured the successful reproduction of his designs by an expert's regard for the capabilities of the colour-printers, who have well responded to his efforts by the results achieved. Artist and printers, indeed, have abundantly justified their selection by the Underground Railway Company, and we are glad to know that another series by Mr. Gregory Brown is to follow.

#### GOLDSMITHS' WORK IN THE DARK AGES.

A paper bearing this title and illustrated by numerous lantern slides was read by Sir William Martin Conway before the Royal Archaeological Institute at the Society of Antiquaries' Hall, Burlington House, Piccadilly, on Wednesday afternoon. Sir Henry H. Howorth, K.C.I.E., the President of the Institute, occupied the chair.

The eighth and seventh centuries B.C. were for the Greeks, Sir Martin pointed out, a great colonising age. From Marseilles in the west to the Crimea in the east Greek colonies or trading centres and factories sprang up at all suitable points on the seashore. Several such settlements were made along the north shore of the Black Sea by Milesian colonists in the seventh century. "The Euxine coast," Mr. E. H. Minns tells us in his recent work on "Scythians and Greeks," "was the first El Dorado, the first mysterious land, to draw adventurers across broad seas in search of fame and treasure." Thus arose Olbia, Panticapeum (the modern Kerch), and many more once thriving settlements. What they thrived on was trade. By sea they were in communication with the Greek cities; by land with the Scythians of the steppe, which stretches away without break far to the west, north, and east into the heart of Asia. They exported cattle, slaves, honey, wax, dried fish, corn, hides, and salt. They imported wine and other manufactured articles. Their wealth and taste are proclaimed by the vast quantities of treasures, made of gold and often set with precious stones, which the graves in this region have yielded. The gold may have come from north or south. It may have been brought down from Transylvania, the Frals, and even the distant Altai, or it may have been imported by the Greeks to pay for the raw materials acquired from the natives. In any case, the Scythians loved golden ornaments, and the Greeks provided such for them. Many of the golden objects found, that date back to the early centuries of the trade, may have been fashioned in the cities of Ionia and imported, but it is evident that most were of local manufacture. These fall into two classes: the work respectively of Greek and of local artists. The former are sometimes purely Greek, alike in design and in technique, but oftener they bear evidence of the taste of the people for

whom they were made. The latter are massive, ugly, and barbaric alike in design and in execution. These two schools existed side by side throughout the centuries. The barbarian school, with its clumsy representations of beasts and fabulous creatures, and its love of coloured stones, was Asiatic in character. One of its most prominent characteristics was the inlaying of coloured stones, oftenest garnets, in a random fashion into the substance of the gold. After the campaigns of Alexander the Greeks, under the influence of the inroad of Orientalism that followed, adopted the setting of precious stones in their jewelry as a fashion increasingly popular. The stone most commonly employed was the garnet. We may call these works the product of the Bosphoran School. Some treasures were dug up at Sivierskaja, in the Kuban district in South Russia, about a hundred miles due east of the Cimmerian Bosphorus—the strait giving access to the Sea of Azov from the Black Sea. The most striking of these are two Roman glass vessels, elaborately mounted in gold and garnets. One is of simple vase form. The mounts consist of two decorated horizontal bands of gold—one round the shoulder, the other half-way down towards the foot. These bands are connected by a few vertical strips of decorated gold. The strips are set with garnets in a curious dog-tooth pattern. From the upper band slender gold chains hang at frequent intervals, in all upwards of a score in number. Gold balls are at the lower ends of the chains. The other vessel is a two-handled cup, with a broad gold band round the lip, on which cabochons are set, each held by a ribbon of gold closely fitting round it. Between them are knobs of gold, covered with tiny gold balls. Chains, more numerous than on the other cup, hang from this rim, and each ends in a ball of garnet, with a gold ball hanging beneath it. I invite the student to place these cups alongside of certain chalices in the Treasury of St. Mark's at Venice, which were looted by the Venetians in 1205 from St. Sophia and other churches at Constantinople. Eleven of these chalices present one remarkable feature: from the lower part of the lip-rim of each there hang a series of fine wires, each originally furnished at the lower end with a pearl. These pendant pearls are the direct descendants of the chains and balls of the Sivierskaja cups, and the jewelled lip-rims of the chalices likewise preserve the ancient traditional mounting of the Bosphoran School. The Sivierskaja cups are not later in date than the first century A.D. The Venice chalices may be approximately dated to the eleventh century. A wide gap indeed sunders them, but it is one that can be partially filled. At Goudon, in Burgundy, not far from Chuny, a small gold chalice was found along with an oblong paten or dish and 103 gold coins of the Burgundian Kings Gondebaud and Sigismund. Chalices and paten are now among the great treasures of the Paris Cabinet des Médailles. Let me also call attention to another feature which the South Russian and the St. Sophia vessels have in common. I refer to the vertical straps of metal by which the upper and lower rings of the mounts are held together. This trick, if we may so call it, spread over Europe, and did not remain characteristic of Byzantine cups alone; but it is excessively common in Byzantine cups, and was no doubt copied from them by Western craftsmen, who only occasionally employ it, and never until they had fallen under Byzantine influence. No less interesting and important is another object from the same Sivierskaja find—a peculiar gold front of brooch set with garnets and coloured stones. Anyone acquainted with goldsmiths' work found in the graves of barbarians in Western Europe, and especially in France and Kent, will find plenty of resemblances between them and this South Russian brooch. Of approximately the same date is an oval pendant found at Akhtamizyaka, in the same district, but close to the head of the Gulf of Taman. From the Novocherkassk find comes also a trifling, but historically very important, fragment. It is a strip of gold

inlaid with oblong pieces of some unstated coloured substances, probably glass pastes, which, says Minns, "recall Central Asia in colouring." This is the first occurrence of these strips of flat inlaid stones, which became common later on. A more striking third-century example of formally inlaid rectangular stones (as distinguished from the casually inlaid pear, thumb-nail, and other rounded-shaped stones long practised by the Scythians) is the well-known gold strap-ornament, inscribed with the name of Ardeshir, found in 1870 near Mainz. Of contemporary finds further west in the heart of Europe, only two call for brief mention. Both were discovered in Hungary. The first is the Osztrópataka find. It consisted mainly of works of Imperial goldsmiths, the most important being an oval fibula formed of a great onyx, framed in a rim of characteristic openwork, such as was fashionable in parts of the Roman world at that time. The necklets, cups, and long fibulae were all of Roman workmanship. Some embossed silver plates formed part of another find close by, but the animals in relief on these had no barbarian connection. The bulk of these objects must be regarded as of Imperial and some of them of provincial Roman make. The third and fourth centuries were a critical time in the history not merely of goldsmithy, but of European art, because it was at this time that the Goths (who in the latter part of the second century had left their settled abodes in the lands near the mouth of the Vistula and moved southward) were thus brought in contact with the civilisation and art of the region north of the Black Sea. They there acquired a taste for jewellery of the Bosphoran type, and this taste presently spread through the whole Teutonic world and became an important factor in the growth of the Medieval Gothic art that was to arise in the west. It appears to have been the invasion of the Huns about 376 A.D. that set the peoples in movement and so helped to spread the new art style. It is thus of great interest to observe what the Bosphoran style was in the fourth century, and how many of its traditions were directly absorbed by the artists of, or who worked for, the Gothic people. The most important group of jewelled treasures of the fourth century definitely Bosphoran in type belong to the Berlin Museum, and were found in a grave or catacomb at Kerch. Along with a brooch was found a diadem as markedly barbarian as the brooch is Imperial. It is formed of a strip of bronze plate in three pieces, hinged together and covered with gold. Two strange ornaments, purchased at Varna, are in the Berlin Museum. Reference to sculptures on the Bharhut Töpe suggest that they were probably a kind of earrings. The Indian examples are thrust through great holes in the lobe of the ear. These seem to have hung from chains that passed over the ear. The Bharhut sculptures depict earrings carrying a number of little bells. The Varna ornaments were fringed with the like tiny tinklers. We thus arrive at the famous Petrossa find. It contains, amongst other treasures, two double-handed gold and jewelled cups, evidently, I think, Sassanian. In their present condition they resemble open-work baskets, but the open spaces were once filled with plate-set stones. We arrive at exactly the method of mounting stones which is exemplified by the Jelalabad reliquary and the Ardeshir strap-end. So far as we yet know, such work was only made in Persia at this date. The least handles are likewise characteristically Persian. It is plain enough that these ornaments are not of the Bosphoran School as we have thus far made acquaintance with it. If we had to accept them as by Visigothic craftsmen, we should have to say that the Visigoths started with a higher level of achievement than the craftsmen of the school from which they learnt. This, however, is not necessary. Every indication leads to the conclusion that we have here examples of the best work of third or fourth century Sassanian goldsmiths. After the third or fourth century there is little, if any, work discernible done by Bosphoran craftsmen

for Scythian patrons. Thenceforward they worked for the Goths, who by war, pillage, and expansion were growing richer from decade to decade. As soon as the true folk-wandering epoch set in, golden and jewelled ornaments were the only kind of artistic products for which wandering chieftains had much use. If anyone wants to realise the kind of work barbarian craftsmen could make, let him examine the earlier group of buckles which Gotze has put together and wishes to attribute to the Goths. There is not a trace in them of the delicate workmanship we have thus far been examining. The flat surfaces are clumsily furrowed into patterns in a manner roughly imitating the so-called Keil-schnitt of fourth-century Roman provincial type. On this are fastened down a few garnets or pastes in the roughest settings. The forms may have sprung into being when the Goths were near the Black Sea, but of the real art of the people of that region there is here no trace. The same is true of the ordinary run of hideous long brooches which the barbarians loved. What is true of the long brooches is true of all the rest of fifth-century barbarian ornaments. The bulk is very poor stuff, but amongst it we find a few admirable works. One thing is practically certain, the Bosphoran region did not remain an important centre of art after the fourth century. The best workmen having gone to more profitable regions, those who remained relapsed, so that such works of the school, few in number, as are discovered near Olbia or Kerch, dating from the fifth or sixth century or thereabout, are rude and poor in quality and design. The sixth century in Western Europe was a period of decadence for barbarian jewellery. If the original impulse toward that art came from the Bosphoran region, and the fine work of the fourth and fifth centuries was, as I hold, made by civilised craftsmen, unless those craftsmen could be reinforced by continued intercourse with the home of their art, or quickened by a genuine artistic impulse in the people for whom they worked, nothing but decadence could occur. Neither of these vitalising influences arising, decadence took place. The group of buckles already mentioned, of the class of which an example was found at Olympia, differ so considerably in style and quality from the ordinary run of jewelled ornaments found in sixth-century graves that it is difficult not to refer them to some specially fortunate centre of manufacture, which may have been the southern part of France or the north of Italy. To this sweeping condemnation of barbarian jewelry north of the Alps an exception must be made in respect of three kinds of earrings and the hairpins associated with them; but so great is the contrast between them and other objects found with them that it seems necessary to conclude that they were imported from some more artistic centre of manufacture. On the necklace belonging to the Assnit treasure a detail is noticeable which thenceforward becomes common. The bent-over part of the mount, which actually edges the stone, is now no longer flat, but has been so pressed down that the surface has been marked with a prominent longitudinal groove. The Assnit treasure is ascribed to the fifth or early sixth century. Similar box-mounted stones with a groove are found as pendant elements of earrings of this date. A characteristic example is in the Evans collection in the Ashmolean Museum. Thus far this type of mount is peculiarly Imperial, and does not occur on any ornament made by or for barbarians. It reaches them for the first time late in the sixth century, with the circular gold-jewelled brooches, and in the seventh century it becomes the characteristic feature of the jewel mounts affected by goldsmiths in barbarian employ. Plenty of instances could be cited of Coptic influence in the west of Europe in the seventh century but a digression on that subject here would carry us too far. The jewelled round brooches are of great variety, very numerous, and many of them of a high order of decorative beauty. In type they descend from the roundel of the first century from Siverskaja, described at the beginning of

this paper, where also reference was made to a third-century example from Syria. Though of Bosphoran origin, it was not in Continental Europe, nor at the hands of barbarians, that the type was preserved and developed. That was done somewhere else, and suddenly in the sixth century the form was introduced from elsewhere into the west, and rapidly became popular. In the seventh century local artificers may have imitated it, and many of the surviving specimens may be their handiwork. But barbarian jewellers of the seventh century stood on a very different level from their rude predecessors, and to them we must turn our attention. Now for the first time in barbarian lands we meet with a named artist, and he is not a painter, sculptor, or architect, but a goldsmith, nor is he a man of the artisan class, but a bishop and Minister of State. I refer, of course, to St. Eloy (born c. 588; *ob.* c. 665). His period of activity was about from 610 to 665 A.D. He started life as apprentice to a goldsmith at Limoges, so that we thus have evidence of a settled manufacture at least as early as the very beginning of the seventh century, and this where we should look for it—in the southern part of France, which had been least damaged by the barbarian infiltration. At this time in Western Europe, as far north as England, a considerable revival of art took place; but it was not primarily a revival of the older leading arts (architecture, sculpture, and so forth), but of the art of the goldsmith. Art patrons then may have and did want churches and other new buildings and caused them to be erected; but what they loved above all else was work in the precious metals and jewels, and these then began to be made for them in great abundance. It is enough to read superficially in the history of the Merovingians to recognise that no works of art could give so much pleasure to the princes of that time as those which could be easily carried about. Hence an intense demand for goldsmithy, which from the seventh century onward till the tenth became and maintained itself as the leading art in all the barbarian lands. We may therefore conclude that, from about the latter part of the sixth century, goldsmiths became settled, active, and presently important craftsmen, rising in a few decades to the position of the leading artists of their day in the kingdoms of the West. There is no need to look necessarily to Byzantium or any east-Roman city for the workshop that produced the crowns of Guarrazar. They contain many a classical detail, and may have been made by an artist who learned his craft in some ancient city of the Eastern Empire, but they were not made to dazzle the eye and catch the taste of an ignorant barbarian, but as part of a regular output of work of a definite style and school, thoroughly understood and appreciated by the class of persons surrounding him, who ordered and paid for them. These crowns demonstrate that the new art was not of a kind that had been brought by barbarians from the Black Sea, laboriously and slowly developed by them in their progress across Europe, till it flowered in their new homes when more settled conditions arrived. On the contrary, when the more settled conditions arrived, it was essentially the art of the Roman world that the barbarians adopted, patronised, and thenceforward developed, but not theretofore. We have now to consider the last great seventh-century goldsmith—the craftsman who seems to have worked in Kent for the Royal Court there, perhaps at Faversham. This man or school is best represented by the wonderful Kingston brooch—as fine a jewel as any produced in Europe in its day. It was found on Kingston Down, Kent, and is now a principal—perhaps the principal—treasure of the Liverpool Museum. We thus reach the end of this rapid purview of the history of the rise of the goldsmith's craft among the barbarian peoples who poured into the Roman world and overwhelmed and destroyed so much that was precious. It has of late been customary to assign to them artistic gifts of their own of too high an order. That they brought a new spirit and much new blood into the West is obvious enough; that this new spirit



ultimately gave birth to new and glorious kinds of art is likewise clear. But it is not true that they carried from the borders of the Black Sea the germs of an art which they themselves developed into something great. It was not till most of their moving and fighting and pillaging was done, and they had settled down in their new homes, that they turned to the lands of ancient civilisation and found among the wrecks of its population enough survivors who still cherished the craft traditions of their ancestors to be able by them to create for the new men of power and wealth works of art incorporating indeed the new ideals, but expressing them by aid of a long-standing technique of ancient development.

In proposing a vote of thanks to the lecturer, the President observed that it had been an epoch-making address, and the photographic reproductions shown on the lantern screen were of the greatest value to students of early jewelry.

The motion was seconded by Mr. W. W. Watts, F.N.A., the keeper of the jewelry department at the Victoria and Albert Museum, who remarked that Sir Martin had elucidated the development of the Byzantine crafts in precious metals and stones and their influence on the arts of Western Europe, where by degrees an independent style was evolved. The further East these early objects were found, the more Asiatic, or, as he might say, the more barbaric, was the character of the workmanship. The lecturer had shown the frequent employment of pendant jewels in Byzantine art, and the excellent artistic effect produced thereby.

Sir Martin Conway briefly acknowledged the vote of thanks, which was carried by acclamation.

#### CONCENTRATION OF THE METROPOLITAN WATER BOARD'S ENGINEERING STAFF.

At the meeting on Friday of the Metropolitan Water Board, the Works and Stores Committee presented a lengthy and comprehensive report upon the proposed concentration of the Engineer's Department. They recommended that a scheme of concentration should not await the completion of the new head offices in Rosebery Avenue, but be put into operation as soon as possible in order to procure uniformity in the engineering administration throughout the Board's area in lieu of the varying practices now existing in the four engineering districts, with a corresponding uniformity in the rules and regulations which the water consumers are required to observe; and the substitution as far as possible of uniform practice for the varying methods at present existing in the different offices in dealing with public bodies, tramway authorities, gas and electric light undertakers, and so forth. This would also allow of a period during which the details of the concentration may be tested in practice before the new head offices are completed, so that the details of the final concentration may be carried out on the most beneficial lines and the rooms and offices in the new building be arranged and fitted up to the best advantage.

The committee therefore made the following recommendations:—(a) That the concentration of the engineer's staff under one roof should not await the completion of the new building, but be carried into effect forthwith. (b) That it is inexpedient at present to appoint a deputy chief engineer. (c) That three sectional engineers, to be known respectively as supply engineer, distribution engineer, and new works engineer, be appointed on the chief engineer's central office staff, and that each sectional engineer be responsible to the chief engineer. (d) That the following appointments of sectional engineers be offered to the gentlemen named:—Supply engineer, Mr. D. F. Worger; distribution engineer, Mr. H. F. Rutter; new works engineer, Mr. J. M. Wood. (e) That the remuneration of Messrs. Worger, Rutter, and Wood, as sectional engineers, be as follows:—Mr. Worger and Mr. Wood, an inclusive salary of £1,000 each; Mr. Rutter, the salary and emoluments prescribed by the

agreement between the Board and Mr. Rutter (viz., £1,500 a year, with residence). (f) That in the event of the illness or absence of the chief engineer after the inauguration of the centralisation scheme, each sectional engineer shall, pending further order, be directly responsible to the Works and Stores Committee for the administration of his section. (g) That (subject to the approval of the building plans by the public authorities) the Board take on lease for twelve months certain, and thereafter from year to year if desired, the third floor of Cecil Chambers, Strand, at a rent of £1,000, the Board paying rates and taxes, but the landlords providing the hot and cold water supply, electric current, bearing repairs and insurance, and erecting partitions.

The report and recommendations, which had been considered and approved by the General Purposes Committee, were adopted unanimously and without discussion.

## Our Illustrations.

### ST. MARY'S CHURCH, SCULCOATES, HULL.

This interior view is included in this year's Royal Academy exhibition. The church replaces an older one on a different site, which latter had become surrounded by mills, and the neighbouring houses cleared away or condemned. The new building is in the centre of the population. The tablets and other memorials from the older church have been placed in the new building, which consists of nave and choir, with north and south aisles, and a large chapel, and vestries on the left of the nave. A square tower will eventually finish the west end of the nave. The building is of local brick, plastered internally with a sparing use of stone. The contractors were Messrs. Quibell, of Hull. The accommodation at present will be for about 700. Mr. Temple Moore, F.R.I.B.A., of Hampstead, is the architect.

### WALL TOMB, STANTON HARCOURT, OXON. AND SIR CHRISTOPHER WREN'S MONUMENT TO HIS WIFE IN ST. PAUL'S CATHEDRAL.

For description of these illustrations, see the review of Mr. Herbert Batsford's new volume, "English Mural Monuments and Tombstones," on p. 563.

### LONGSTOWE HALL, CAMBS.: ARCH. WAY ENTRANCE BUILDINGS.

These lodges to the forecourt are arranged right and left, flanking the central archway. The group is uncommonly picturesque, but in reality there is more repose about the design than is suggested by this very sunny photograph now printed, with the flickerings of high-light and shadows cast by the foliage of the adjacent trees. The illustration is self-explanatory, and as a photograph it is very charming and unusual. Messrs. John W. Simpson, F.R.I.B.A., and Maxwell Ayrton, A.R.I.B.A., are the architects. Previous illustrations of their work at this mansion and on the estate carried out during the past few years will be found in our issues of February 23, April 3 and 12 this year.

### HOUSE AT MACCLESFIELD: DETAILS.

Last week the general drawings of this house were published, with a description. To-day two sheets of working details are given. Mr. Maurice B. Adams, F.R.I.B.A., is the architect.

### NEW PREMISES, SANDGATE ROAD, FOLKESTONE.

This intended scheme is for new business premises in the above thoroughfare, which has now become the principal shopping centre of the town of Folkestone, to be occupied by Messrs. Bobbie and Co., Ltd., the well-known drapers, etc., of Margate and many other towns. Owing to the European crisis, the work up to now has not been commenced, and the existing buildings on the site are for the present in occupation of the Belgian Consul and Refugee Committee, kindly lent to them by Messrs. Bobby and Co. at the beginning of the war. Mr. E. Searchfield is the architect of the buildings.

### BOARD OF EDUCATION ADMINISTRATION BUILDING, TORONTO, CANADA.

The new administration building of the Board of Education is to be ready for occupation this year. We presume the work is being carried out under the Works Department, but do not know the name of the architect. It is situated in College Street, Toronto, the façade being directly opposite the University buildings. The architecture is of Greek design. The distinguishing feature of the façade is an Ionic colonnade in stone rising upon a rusticated base. This frontispiece is flanked by two end pavilions, and there is an attic story above. The entrance is adapted from the famous Erechtheion doorway. Between the Ionic columns are iron fillings fitted with metal casements. The construction is steel-framed, fireproofed with hollow tiles and carried by concrete piles going very deep, as the site is over the old Sleepy Hollow Creek. All floors and partitions are of hollow tiles. The material for walling is grey stock brick, with dressings of Indiana limestone. Saving the board room and members' room, the internal treatment is very plain. The inquiry office, fitted with a bronze wicket, directly faces the entrance. Close by is the elevator and staircase. On the right and left of the entrance are situated the medical inspection and supply departments. The members' room is approached on the left of the inquiry wicket. This room is a comfortable meeting-place for the members, being finished with panelling, with stucco frieze over and a heavy beamed ceiling. The lockers and telephone booths for the members are arranged in the wall panelling, with toilet accommodation directly off this room. The feature of this room is the large open brick fireplace, over which is a marble panel with bas-relief carving symbolical of Education. The woodwork finish of the walls, ceiling, and furniture will be of walnut. A private entrance opens into the board room. The board room is Italian Renaissance in design, the walls being treated with twin fluted pilasters of the Corinthian Order surmounted by an enriched entablature with panelled frieze, and supporting an ornamental segmental ceiling. The walnut dais is raised upon a platform. The desk and seats for the members of the board are arranged in horse-shoe form. Provision for the public is on the main floor, and also in the gallery, which is accessible from the main stair landings. The gallery is supported by cantilevers. The furniture will be of walnut. The second floor is devoted to committee rooms and the secretary-treasurer's department, while the third floor is occupied by the inspector's department, with a private office for the chief inspector, and desk rooms and a room for the junior inspectors. The library is also here, and a room for supervising teachers. Special care has been given to the draughting room in providing ample light by installing skylights in addition to the windows. The basement is occupied by the heating and ventilating apparatus, fuel storage, caretaker's apartments, kitchen, and lunch rooms for the staff. A feature of the building is the fireproof vault, which is built on a separate foundation, and is entirely independent from the skeleton construction of the building. Steam heating and fan ventilation are used throughout. An electric elevator serves all floors. The building was erected, under the supervision of the Department, by the following constructors:—Masonry, H. N. Dancy and Son; steel, Don. Bridge Co.; fireproof floors, J. A. Wickett, Limited; roofing, W. E. Dillon Co., Limited; carpenter, F. Armstrong; painter, F. A. Owens; plasterer, A. D. Grant; wiring, A. R. Rice and Co.; plumbing and heating, John Ritchie P. and H. Co., Limited; ironwork, Can. Orn. Iron Works; heat control, Johnson Temp. Reg. Co.; marble and terrazzo, Can. Glass. These particulars are given by the *Contract Record*, of Toronto.

A new factory is being built in Whitehall, Leeds, to cost upwards of £100,000. Mr. W. Atkinson, Mark Lane, Leeds, is the architect.

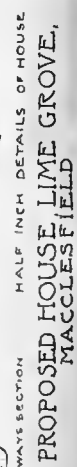
The Local Government Board have consented to the rural district council of Martley applying for sanction to the loan of a further £1,000 for the Hallow sewerage scheme.

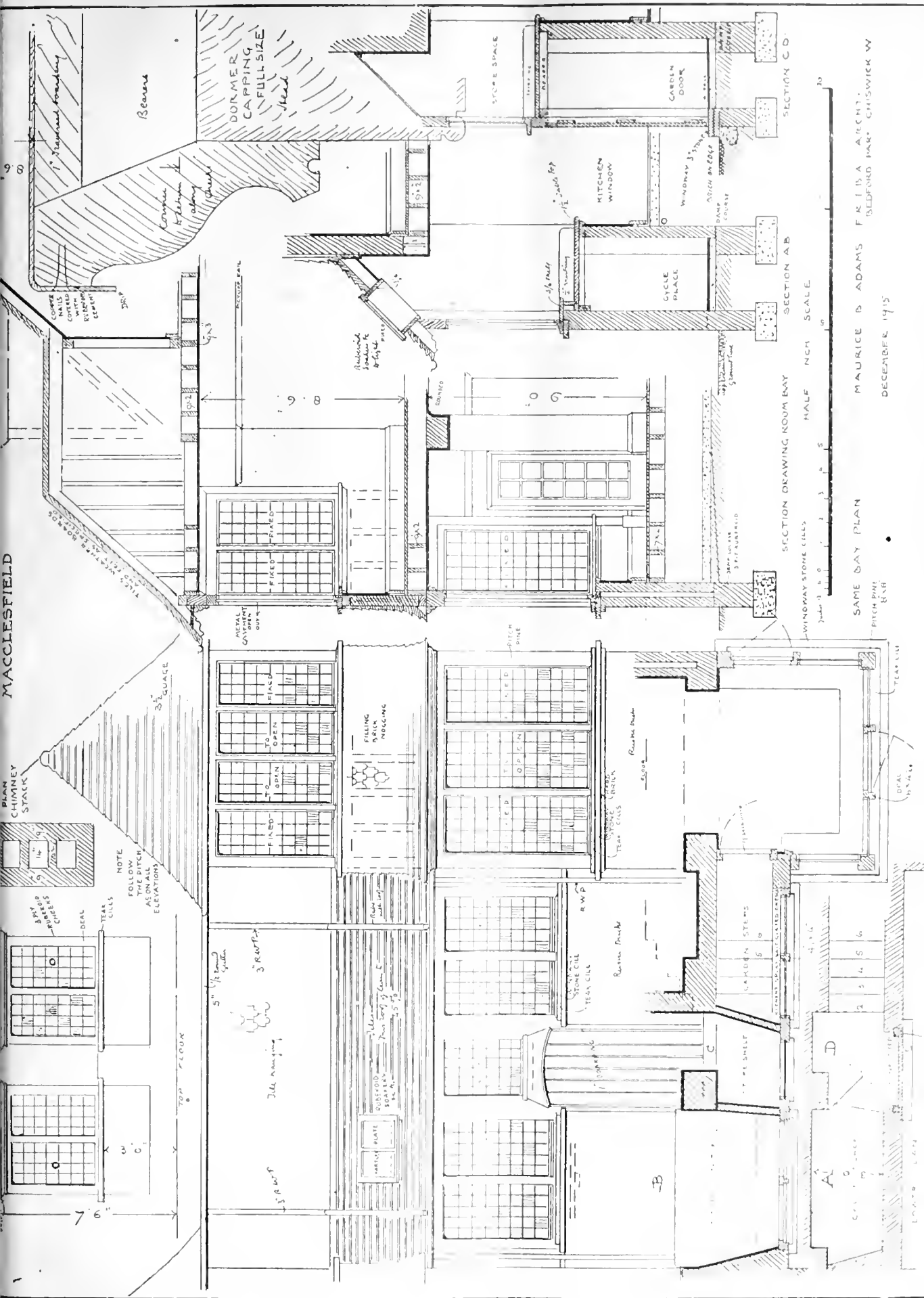
MESSRS BOBBY & CO LTD  
*New Premises*  
*Sandgate Road*  
FOLKESTONE.



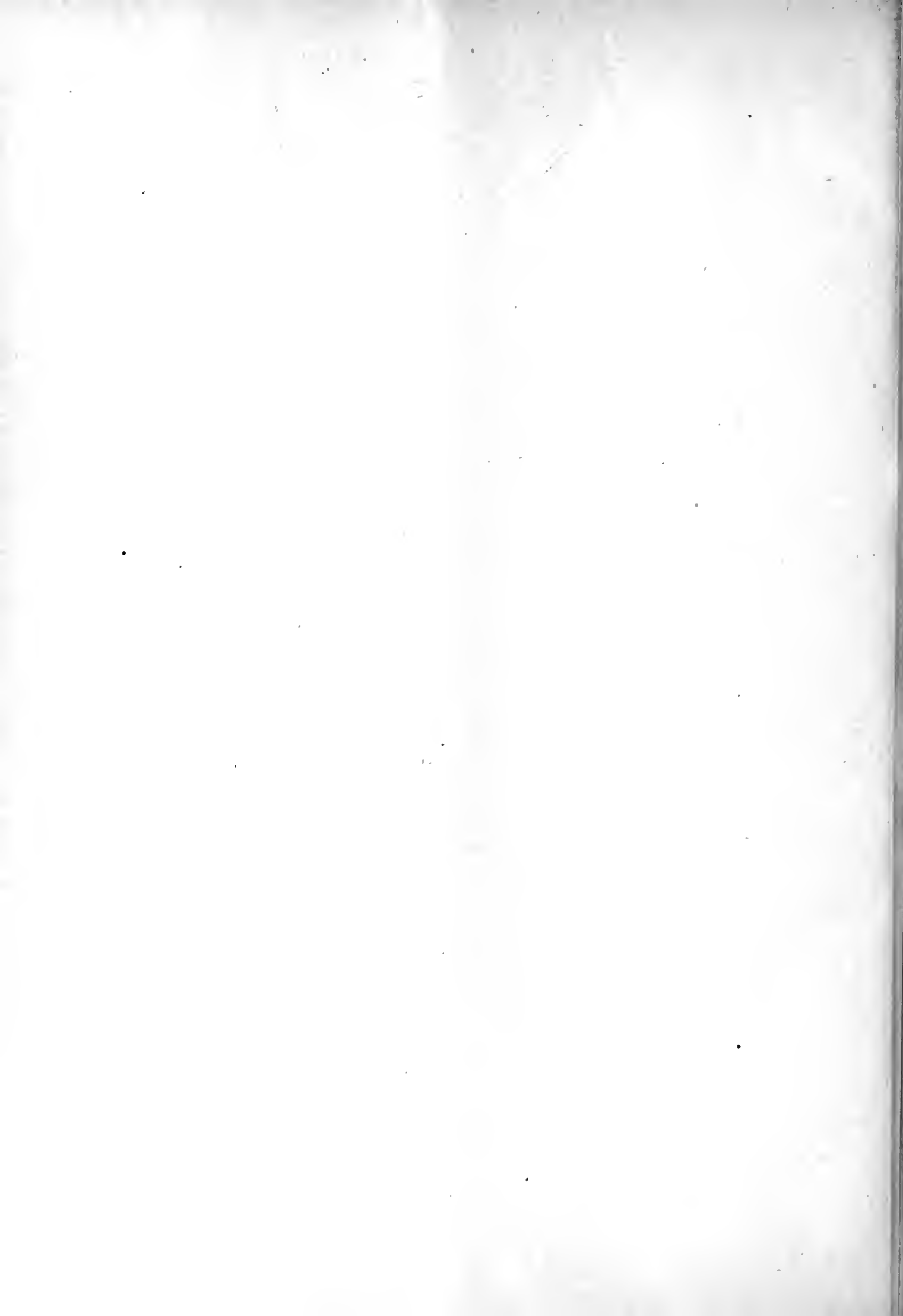
BUSINESS PREMISES, FOLKESTONE,—Mr. E. SEARCHFIELD, Architect.



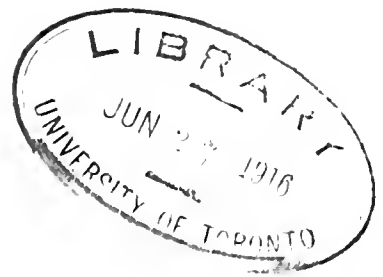


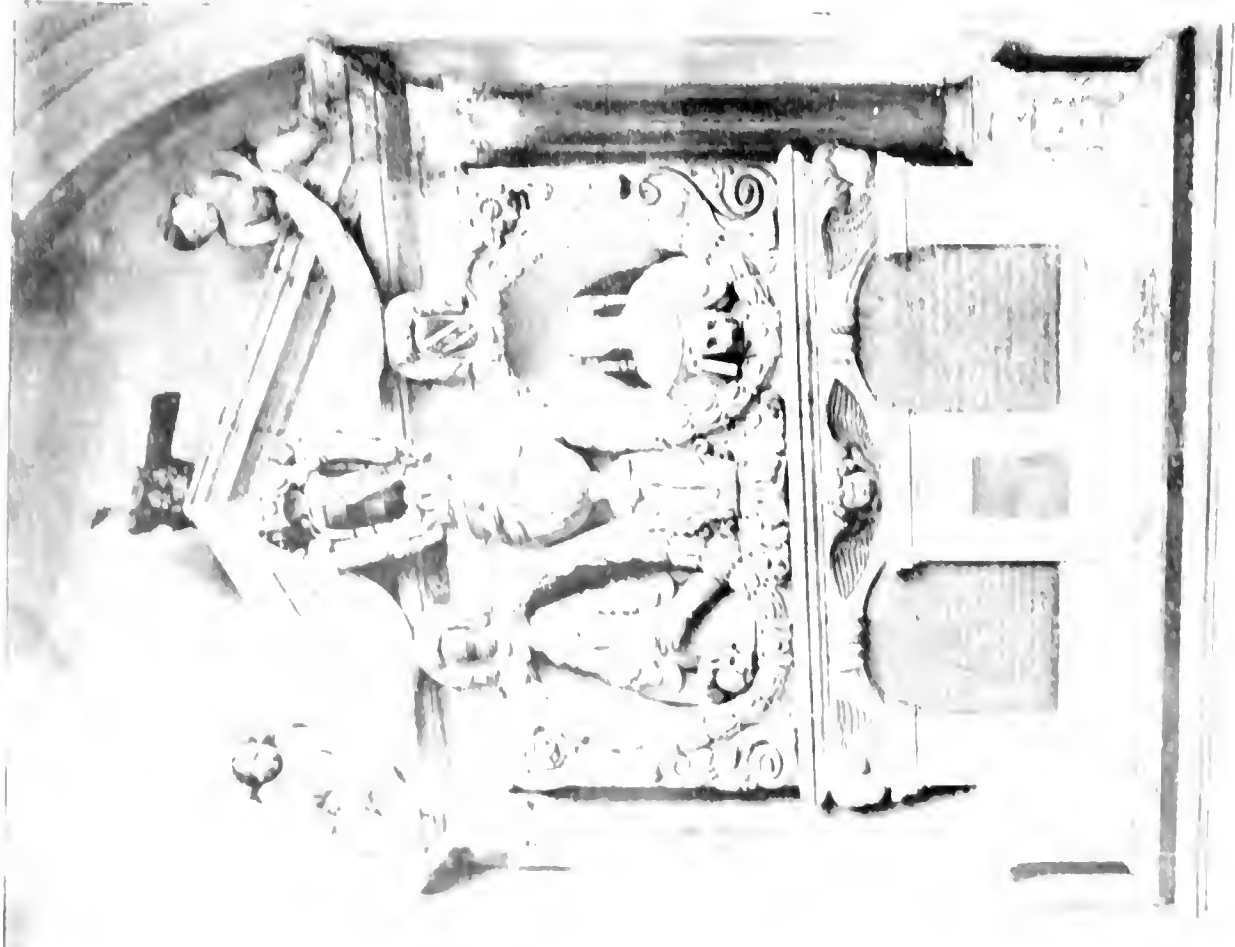


DETAILS OF A HOUSE, MACCLESFIELD, CHESHIRE.—MR. MAURICE B. ADAMS, F.R.I.B.A., Architect.





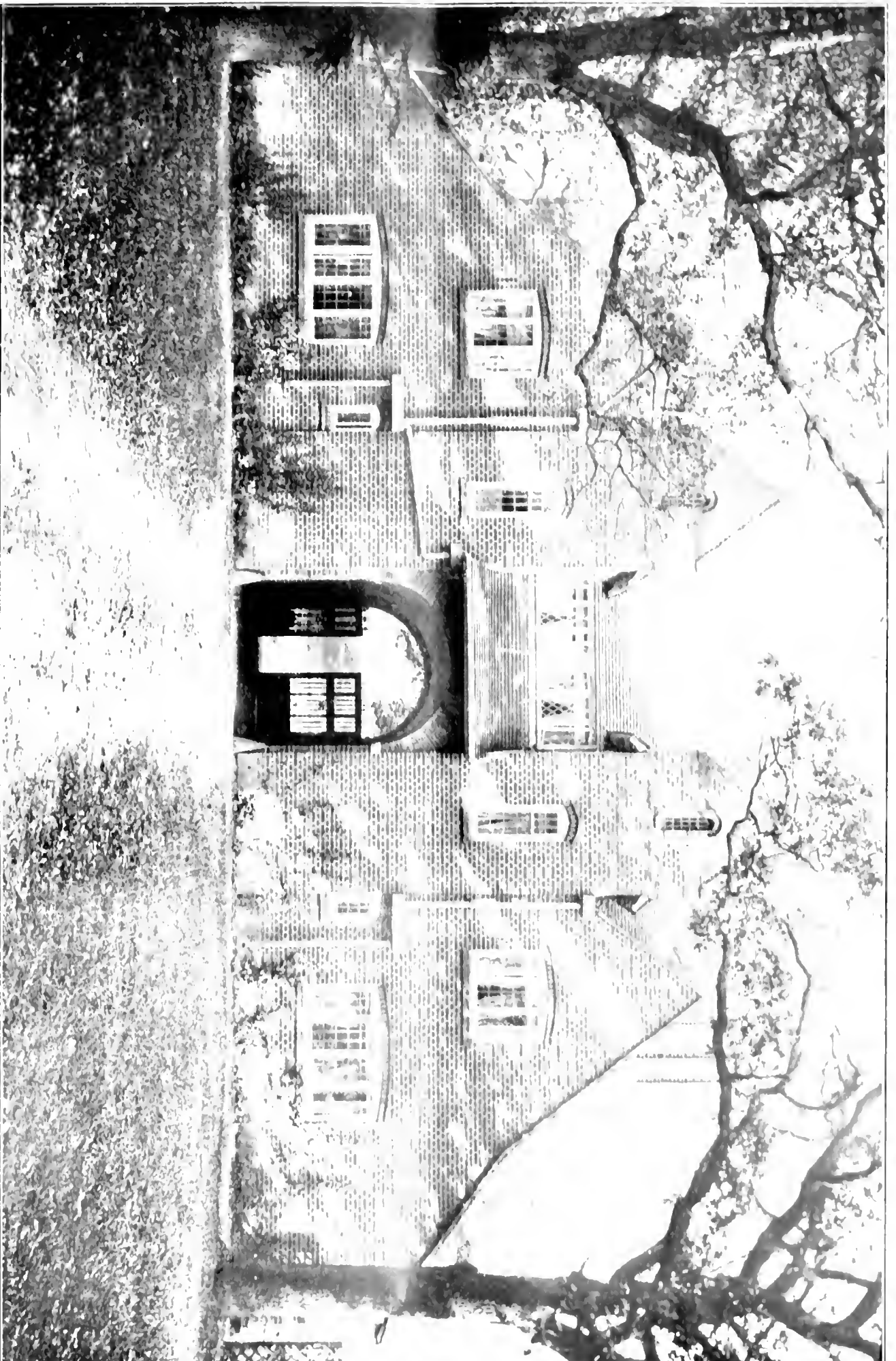




WALL MONUMENT ERECTED BY SIR CHRISTOPHER WREN TO  
HIS WIFE IN ST. PAUL'S CATHEDRAL (1712).



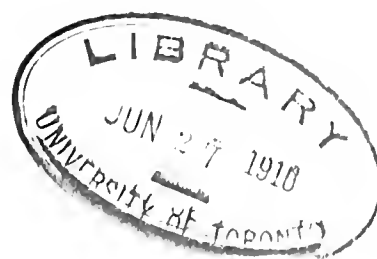
WALL MONUMENT ERECTED BY SIR CHRISTOPHER WREN TO  
HIS WIFE IN ST. PAUL'S CATHEDRAL (1712).



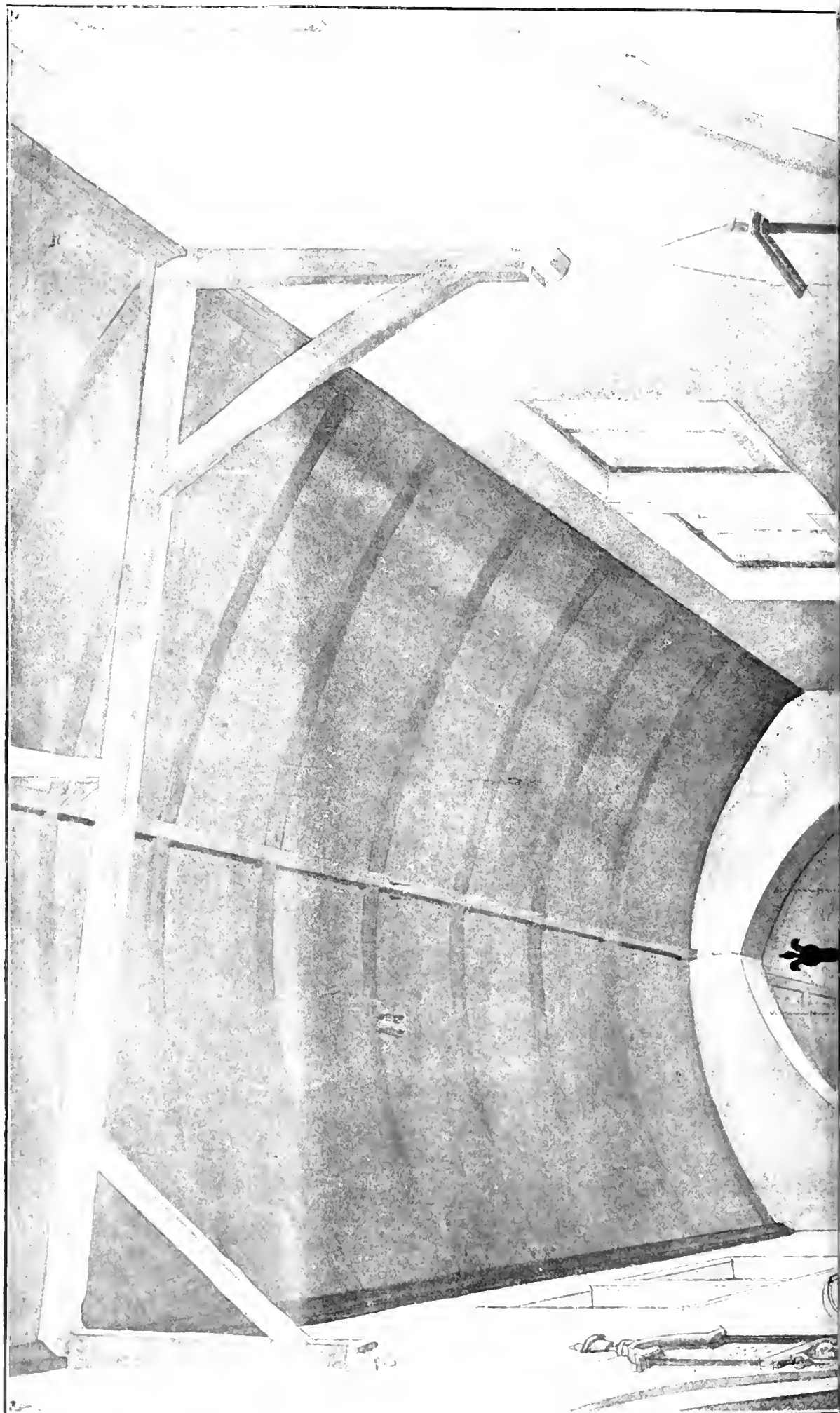
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MONISTONE HALL CAMBRIDGE-HERE ARCHWAY ENTRANCE TO MONASTERY  
Monsieur W.S. TRIBAL, M.D., F.R.C.S. ARIAN, M.D.

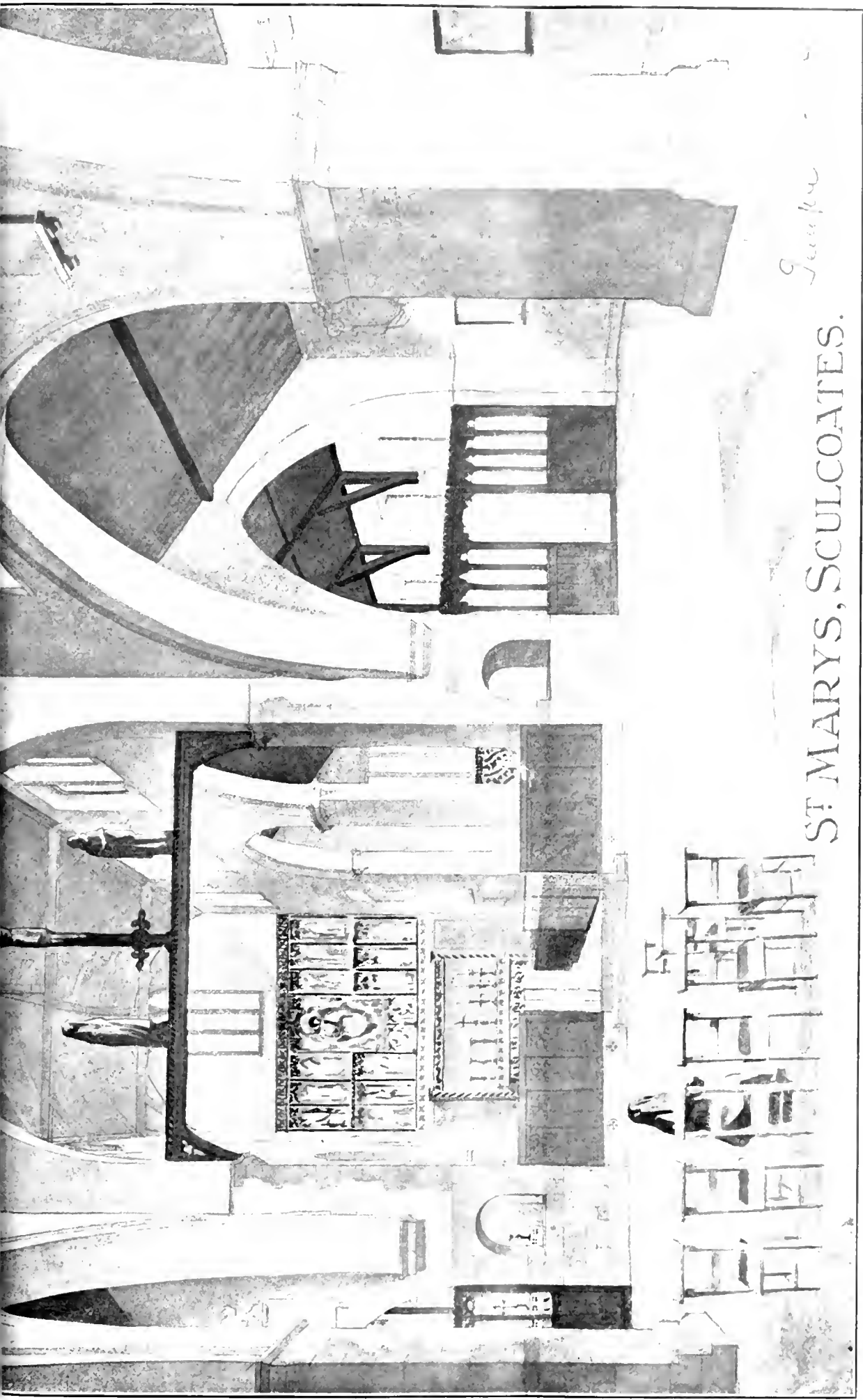




THE BUILDING NEWS, JUNE 14, 1916.





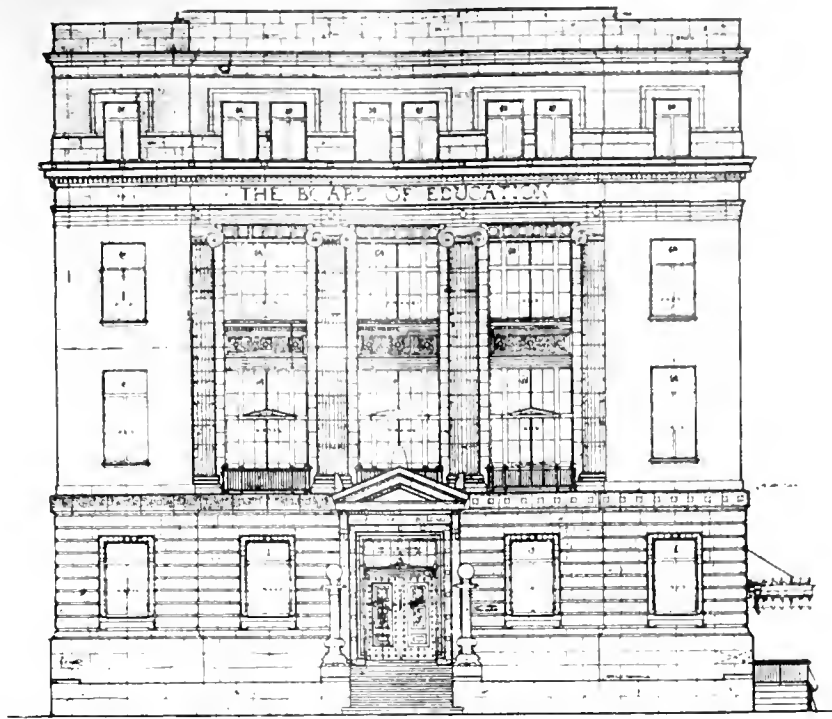


G. S. 1844

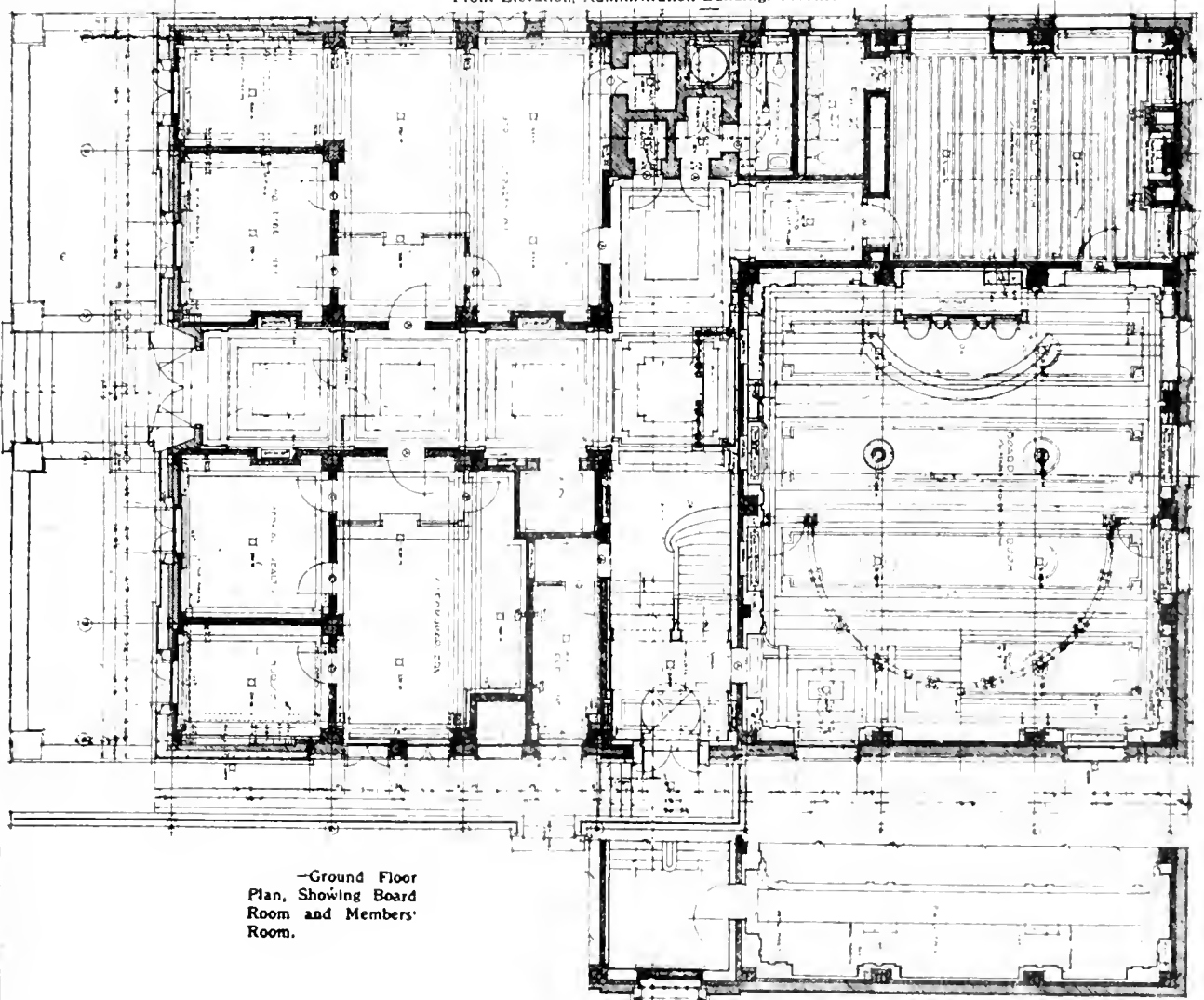
# ST MARYS, SCULCOATES.

CHURCH OF ST MARY, SCULCOATES, HULL.—MR. TIMOTHY MOORE, F.R.I.B.A., ARCHT.





Front Elevation, Administration Building, Toronto



—Ground Floor  
Plan, Showing Board  
Room and Members'  
Room.

PLAN OF BUILDING SHOWING  
ENTRANCE AND STAIRS, LANDING

### DRY ROT IN TIMBERS.

All wood is almost equally durable under certain conditions. Kept absolutely dry or submerged it lasts indefinitely, but under other conditions the best wood may decay very rapidly. Dryness and good ventilation are the best guarantees of prevention from decay in timber used in general construction. Water also seems to act as a preservative, as some kinds of timber totally and constantly submerged in water not in motion have been found to remain practically sound for hundreds of years.

The general causes of decay in timber are the presence of sap, exposure to alternate wet and dryness; or to moisture accompanied by heat and lack of ventilation. Rotten timber is due to decomposition or putrefaction, generally occasioned by dampness, and which proceeds by the emission of gases, chiefly carbonic acid gas and hydrogen. There are two kinds of rot to which woodwork in a building is subject, dry rot and wet rot. The chief difference between them seems to be that wet rot occurs where the gases involved can escape. By it the tissues of the wood, especially the sappy portions, are decomposed. Dry rot, on the contrary, occurs in confined places where the gases cannot escape, but enter into new combinations, forming fungi, which feed upon and destroy the timber.

Dry rot is generally caused by lack of ventilation; confined air, without much moisture, encourages the growth of the fungus, which eats into the timber, renders it brittle, and so reduces the cohesion of the fibres that they are reduced to powder. It generally commences in the sapwood.

Dry rot is especially dangerous in that it not only eats up the entire timber in which it originates, but the germs of the fungi producing it spread themselves to all adjacent woodwork without necessary contact between the diseased and the sound wood.

The conditions required for the germination or growth of the dry rot fungus (*Merulius lacrymans*) have often seemed mysterious. The spores germinate in an eccentric manner and frequently refuse to grow to fruition on their customary host in artificial cultures. Dry rot fungi have two methods of reproduction and can remain a long time in a resting state. The common reproductive body, corresponding to the seed of higher plants, is called a spore, and grows over the surface of the plant. Spores are brown in colour and therefore may be easily distinguished from the surrounding sterile growth. They are microscopic in size, being about .0004 of an inch long and .0002 of an inch broad. A single plant produces many millions and their small size allows them to float a long distance in the air.

Under favourable conditions for growth, such as insufficient moisture, some of these destructive fungi assume a form of reproduction different from that by which they ordinarily spread. In this form, the growing plant separates into small sections which can sprout and grow again when favourable conditions arise. It can remain in this resting state for a considerable time in air-dry wood.

Rot in wood was originally supposed to be a chemical action similar to rusting of iron, and the delicate lace-like plants, tough brackets, or brown leathery growths were supposed to be attracted by the decayed wood, rather than being the cause of the rotting. The chemistry of the rotting process is not well known even at the present time. It is probable that there is some chemical action in addition to the life progress of the fungus through the wood cells. It is noted in blocks of sound wood, in which fungus has been cultivated, that when the fungus is freshly removed from the moist wood, it has the appearance of being bright and sound as ever; but after being left in a dry atmosphere for a time the wood shrinks and forms the characteristic brown, cracked and powdery material which is familiar as rotted wood.

Without doubt, the fungus ceases to make any vital progress very soon after drying commences, and the final browning and powdering is brought about by oxidation by the air, assisted by certain organic enzymes,

either already present in the wood cells or formed by the activity of the fungus.

In most cases, the rotting found has taken place rapidly, instead of having been, as sometimes supposed, a slow continuous process similar to the rusting of iron or the weathering of stone. Sometimes after the timber has been partly destroyed, the fungus growth is arrested, leaving sufficient strength to carry the load, and, when the rotted timber is discovered years later, it is assumed that destruction has been progressing slowly since the erection of the building.

Dry rot progresses much faster in summer than in winter in an ordinary building which is heated and thus has its air made relatively dry during the winter months. Moisture produces the condition most favourable for rapid rotting, the rate of decay being dependent on the relative humidity. Relative humidity is defined as the ratio of the amount of moisture present at any given time to complete saturation, or the percentage of saturation, of the air at the given temperature.

The relative humidity of air in a room or basement sometimes is very different in places only a few feet apart. The difference of a few per cent. in the relative humidity is sometimes sufficient to stop the growth of certain fungi.

The effect of moisture is not limited to the air, but extends to the interior of the timber. Weaving-room and paper-mill timbers are frequently found with a sound shell both inside and out, and the interior entirely rotted away.

That wood-destroying fungi cannot grow under water, or with the wood cells filled with water, is proved by many examples. One of the fine points in the successful design of wood-stave pipe for conveying water under pressure is to design its staves so thin that the pressure will keep the wood saturated; then, it is claimed, it will last indefinitely without decay. Wood of great antiquity has been found buried in clay in a perfect state of preservation.

*Merulius lacrymans* fungus will grow on the surface of wood at atmospheric saturations from 96 per cent. to 100 per cent. It will grow inside of large beams of susceptible material at a much lower percentage of atmospheric saturation. A possible source of moisture for supplying the requirements of a fungus growing inside a large beam is the decomposition of the beam itself. Chemical analysis shows rotted wood to contain relatively less hydrogen and more carbon than the original sound wood; this would indicate that the hydrogen part of the cellulose, or lignine molecule, is more strongly attacked than the carbon part. This would result in the formation of water, if the decomposition is accompanied by oxidation.

The dry rot disease is chiefly carried by direct contact, but living spores carried in the air can take root when they find a favourable resting place. Fungi are frequently carried in lumber and spread by placing it in large piles with scant ventilation.

In examining a building affected with dry rot, the extent of the rotting can generally be estimated approximately by boring test holes into the beams and columns at frequent intervals. If the material is badly rotted, the borings brought out will be in the form of brown powder or mud, according as the wood is wet or dry.

Hammering on the timber with a machinist's hammer is another method frequently adopted. In this way the outer shell of apparently sound beams has been broken through, showing the entire destruction of the interior. To determine whether the rot is still alive is frequently a complicated matter. If it is growing on the surface of the wood the fresh growth of lace-like plants is significant, but the more frequent condition is where the dry rot fungus is growing inside the wood with no outward manifestation. In this case, a strong indication of living fungus is the moist appearance of a freshly-cut section.

### PREVENTION OF ROT.

For ordinary building construction the best means to preserve timber from decay

is to have it thoroughly seasoned and well ventilated; and if these conditions are secured, there is little danger of rot. Ventilation is generally the first preventive measure suggested. Dry wood, which is placed in an atmosphere well below the moisture requirements of a given fungus, is undoubtedly incapable of infection with that fungus; but ventilation does not necessarily cause drying, as the wood will become drier or wetter depending on the relative humidity of the air with which it is ventilated. Therefore timber ventilated with moist air may have its rate of rotting accelerated rather than retarded.

A heavy coat of paint may retard or accelerate the rate of rotting, depending upon whether it prevents the wood from absorbing or giving up moisture. The condition most commonly met, in which paint causes rotting, is when it is applied to green timber saturated with water. With dry, sound timbers which are to be placed in a moist atmosphere, a paint will doubtless prove beneficial in proportion to its waterproofing qualities.

It is probable that a very important factor in the resistance of several woods to fungus growth is the presence of some moisture resisting material, such as resin, which prevents sufficient water from being absorbed under the ordinary conditions of atmospheric humidity for the requirements of common fungi. On the other hand, the presence of hygroscopic materials in wood cause it to absorb large amounts of water, in order to maintain equilibrium with the atmospheric humidity, and would render it more susceptible to attack by fungi. "Cold water" or "fire-proofing" paints, containing hygroscopic materials, therefore accelerate the progress of rot.

Heat and drying are useful in stopping rot. Often an infected building can be sterilised by skilful use of its own heating system. *Merulius lacrymans* is particularly sensitive to heat, a temperature of 108 deg. F. for three hours or 115 deg. F. for one hour being sufficient to kill it. It is also killed by complete dryness; but ordinary air drying does not kill it. Large beams and girders are better built up and cased, and posts should be bored longitudinally. But even columns with holes through them and the sections of built-up beams must be given a chance to season, as the common custom of boring green or wet columns just before they are put in place in a building, and using damp or green lumber for built-up beams, leaves ideal places for the growth of fungus. Holes in columns, moreover, have the objection that they form a convenient passageway for the fungus to move rapidly from floor to floor in a diseased building.

The causes of natural resistance to fungi in wood are obscure and have been investigated but little. Heartwood is generally much more resistant to fungi than sapwood. The presence of starches and sugars in the sapwood, which serve as foods for fungi, as well as the greater water content, are probably the chief causes of its more rapid destruction, while the resistance to water of the heart resin and the antiseptic action of tannin are undoubtedly important functions in the resistance of the heartwood. The limiting power of resin is not absolute, but varies with the moisture, variety of fungus and time of exposure. The resistance of wood to decay does not depend upon any one factor, but is the result of many heterogeneous components acting together.

Antiseptic treatment is the only practicable procedure with lumber of doubtful durability because of porosity, light weight, sap or previous exposure to infection, or when it is to be used in a moist place. Much attention has been given to the treatment of railroad ties, posts, etc., but very little study in the past has been given to the treatment of mill timber. The increased life of railroad ties treated with an antiseptic of 10 lb. of creosote per cubic foot is given by the U.S. Forest Products Laboratory as from eight to fifteen years.

The problem of treating timber for factory construction, however, is different from that of railway ties or posts. Increased fire hazard, resistance to paint, and a disagreeable odour are items to be considered, which

are of no importance in the case of ties or posts. For this reason, the numerous creosote and tar compounds are often unsuitable. The metal salts, such as corrosive sublimate, are preferable according to all the evidence thus far available. Coal tar compounds are more used for preservative treatments of wood than all other materials together; they act mechanically and chemically, serving as waterproofing as well as antiseptics. The penetration of antiseptics has been increased by the use of vacuum and pressure processes, applied in closed tanks.

Various observations show that liquid oils do not thoroughly waterproof wood, and, from all evidence obtainable, fungus is able to thrive about the same on oil-soaked wood as upon wood without it.

In building a paper mill or weaving mill, or any structure in which the humidity will be high, antiseptic treatment is well worth its cost with any timbers now available.

Summing up the question of dry rot, and its menaces to timber structures, the variety of fungi causing destruction of buildings are apparently few, and their habits are controlled chiefly by the supply of moisture and the temperature. It is well worth the cost to heat the building as soon as possible after completion. Buy heartwood whenever possible and subject it to a chemical treatment of sufficient strength to kill any latent fungi that it may contain, and to protect the surface from future attack. Also provide good ventilation, and the menace to the safety of structures by dry rot will be largely prevented.—*The Contract Record.*

#### PROFESSIONAL AND TRADE SOCIETIES.

**THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.**—The council met on Monday, June 5. The president, Mr. R. Caulfield Orpen, was in the chair. There were also present:—Messrs. W. Kaye-Parry, vice-president, H. J. Lundy, J. H. Webb, G. L. O'Connor, W. A. Scott, F. Batchelor, F. G. Hicks, A. E. Murray, C. A. Owen, A. G. C. Millar, L. O'Callaghan, R. M. Butler, G. P. Sheridan, H. Allberry, and Frederick Hayes, hon. secretary. In connection with the question of the rebuilding of the late destroyed areas the following resolution was adopted:—That the Government should embody in any Bill dealing with the rebuilding, "power to acquire in the Sackville Street area all the sites of the destroyed property, and, where necessary, those of the premises adjoining, and to re-distribute these sites, define the boundaries, and control the designs." A letter was received from the Architectural Association of Ireland expressing its approval and general adherence to the terms of the resolution adopted by the council dealing with the desirability of imposing conditions of restrictions with regard to the design and reconstruction of buildings in important thoroughfares, so that they shall conform to some general scheme of street improvement. The following correspondence and reports were received and dealt with:—Letters from the Royal Institute of British Architects, Dublin Industrial Development Association, Mr. F. B. Pearson, and the Architectural Association of Ireland, and reports from the Ancient and Historic Buildings Committee and from the Rebuilding of Sackville Street Area Committee.

The death of Mr. Harry J. Blundell, a well-known local contractor, occurred at his residence, Stanley Road, Bootle, on Monday in last week.

Sir Edward Nicholl, managing director of the Haff Line of steamers, Cardiff, has given £10,000 to the King Edward VII. Hospital at Cardiff. The sum is to be devoted to the erection of a new wing.

The new parish church of St. Mary's, Harrogate, for the erection of which the late Surgeon-General Lofthouse left £24,000, was recently dedicated for service by the Bishop of Ripon. It contains a memorial chapel, in which will be placed a marble figure of the late Surgeon-General on horseback. The architect is Mr. Walter Tapper, F.R.I.B.A., of St. John's Wood, whose design, selected in competition, was illustrated in our issue of October 10, 1913.

## Building Intelligence.

**NEWCASTLE-ON-TYNE.**—The Armstrong College Hostel for Women Students was formally opened on Wednesday afternoon. Designs were invited in competition for the buildings proposed to be erected, and those submitted by Messrs. Newcombe and Newcombe, Eldon Place, Newcastle, were selected, on the recommendation of Mr. Brierley, architect, of York, and the buildings have been carried out from Messrs. Newcombe's plans and under their supervision. The cost of the present buildings was about £7,300, but the building of the south wing has, in the meantime, been left over until the additional accommodation is required. The constructional work was executed by Messrs. Middlemiss Brothers, contractors, of Newcastle, and Mr. J. C. Rawling acted as clerk of works.

**OXFORD.**—The completion of the new chemical laboratories in South Parks Road, Oxford, was marked by a reception and inspection on Wednesday. When Mr. W. H. Perkin was appointed to the Waynflete Professorship he offered £15,000 to provide laboratories, provided the University could find a suitable site. The site in South Parks Road adjoining the museum was accorded, and the building was begun. The sum provided was found to be inadequate, and Mr. Charles W. Dyson Perrins gave another £5,000, bringing up the total for the laboratory to £20,000. Subsequently Mr. Perrins gave a further sum of £25,000, £5,000 to be spent on the equipment and furnishing of the laboratory, and £20,000 to be funded as a permanent endowment. The funds available have permitted the erection of the central block, together with the western wing, but the eastern extension is for the present postponed. The principal room in the building is the main laboratory, which is 64 ft. by 35 ft., and 21 ft. in height. West of this is the small lecture theatre and research room. Below on the ground floor are six research rooms and a women's common room, and on the upper floor in the central block is the professor's laboratory. The architect is Mr. Paul Waterhouse, V.P.R.I.B.A., of Holborn, whose design and plan were illustrated in our issue of May 22, 1914. Messrs. Armitage and Hodgson, of Leeds, were the contractors, and Mr. J. Rees was the clerk of works.

#### TRADE NOTES.

Boyle's latest patent "Air-Pump" ventilators and latest improved air-inlet brackets have been adopted for the offices of Messrs. Engert and Rolfe, Ltd., at Rancaster Street, Poplar, E.

The Chadderton new smallpox hospital, near Oldham, is being supplied with Shorland's double-fronted warm-air ventilating patent Manchester stoves, with descending smoke flues by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

"Reli" asphalt concrete is to be laid to the walks of the new extension to the Rochdale Infirmary. The architects are Messrs. Jesse Horsfall and Healey, 4, Chapel Walks, Manchester, and the contractors for the asphalt concrete are Messrs. W. Shepherd and Sons, Ltd., Milkstone, Rochdale.

The work of restoring the Hammerton Crusaders' Tombs at Selby Abbey has now been completed, and the effigies have now been placed in a prominent position in the nave. The recumbent figures are in an excellent state of preservation.

At the last meeting of the River Wear Commission held at Sunderland it was agreed, on the recommendation of the traffic committee, to let a piece of land at the South Dock to Messrs. Barrum and Sons, shipbuilders, on which to extend their offices, and also to let to Messrs. A. Milburn and Co. land and buildings.

At the annual meeting of the Zoological Society of Scotland held at Edinburgh, the president, Lord Salvendy, announced the gift of £10,000 by the Carnegie Trustees for the purpose of erecting an aquarium at the society's gardens in Edinburgh. The work will not be carried out until after the war, but in the meantime the capital sum is deposited for the society's benefit at  $\frac{1}{2}$  per cent. above the current bank rate.

## Correspondence.

### AN OPENING FOR MARRIED ARCHITECT OFFICERS.

To the Editor of the Building News.

SIR,—My son, who is adjutant of the 23rd Battalion, London Regiment, writes to me from France to say that his commanding officer is very pleased to hear that married architects have been invited to enlist in this battalion, and that they may be sure of a hearty welcome should they come to France. —Yours very truly,

ERNEST NEWTON.

Royal Institute of British Architects,  
9, Conduit Street, W.,  
June 12, 1916.

#### OBITUARY.

We regret to hear that Mr. and Mrs. James Carmichael, of Redclyffe, Streatham Park, S.W., have sustained a fresh and great bereavement in the untimely death, as the result of a bicycle accident, of their only surviving son, Stewart Reid, at the early age of twenty-one. Their elder son, Captain Douglas Carmichael, who had entered his father's business of a builder and contractor at Trinity Road, Wandsworth, on leaving Jesus College, Cambridge, two years ago, was killed in action in Flanders on September 25 of last year.

Sir H. F. Donaldson, K.C.B., who was lost in the Hampshire, had been for years past technical adviser to the Minister of Munitions. He was the second son of the late Sir Stuart Donaldson, first Premier of New South Wales, and was a past president of the Institution of Mechanical Engineers and a member of the Council of the Institution of Civil Engineers. As a civil and mechanical engineer he was employed at Goa, India, from 1884-7 on railway and harbour construction. He was also engaged in connection with the Manchester Ship Canal, and from 1892-1897 he was chief engineer of the London India Docks Joint Committee. In 1898-9 he was Deputy Director-General of Ordnance Factories. From 1899 to 1903 he was Chief Mechanical Engineer of Ordnance Factories, and from 1903 Chief Superintendent.

The death is announced of Colonel Robert Parry Nisbet, C.I.E., at the age of seventy-seven. He joined the Indian Army in 1859, and in 1862 was appointed to the Punjab Civil Commission. He carried through the settlement of the Gujranwala District, and was subsequently Deputy Commissioner of Lahore for five years, where he did excellent work in connection with the carrying out of the waterworks for the supply of the city. He was for the same period in charge of the Simla District, where he effected many public improvements. In March, 1885, he was Commissioner of the Rawal Pindi Division, and in 1888 the Viceroy gave him the appointment of Resident in Kashmir, which post he held until his retirement in 1892.

Mr. William Barnes Boodle, a veteran of the Liverpool art world, who died last Wednesday, was born in Belfast in 1840, but spent almost all his life in Liverpool. He studied at the Slade School, London, and London University under Poynter. In 1872 he appeared as an exhibitor at the second Liverpool Autumn Exhibition in the Museum, and he continued to be a contributor, with scarcely a break, until last year. In all he showed 111 works in forty four years. At the Royal Academy he made his first appearance in 1874, and from time to time he showed ten pictures there, the last in 1901. Mr. Boodle was never married.

Mr. K. G. Foster, highway surveyor to the St. Germans Rural District Council, has had his salary increased from £120 to £140 a year.

On Saturday the Bishop of Ripon dedicated a stained glass window in the chapel of the Ripon-Wakefield Training College, the gift of the students leaving the college in 1914. The window, which represents Bishop Lightfoot, of Durham, completes the series of windows in the chapel representing the great teachers of the Church.



## LEGAL INTELLIGENCE.

**IRISH COUNTY SURVEYOR ACQUITTED.**—Before a court-martial, over which Lord Cheylesmore presided, held in Dublin on Wednesday, James Quigley, county surveyor of Meath, was charged with aiding and abetting the commission of an act prohibited by the Defence of the Realm regulations, on April 28, by conveying information to a number of persons who were taking part in an armed rebellion. Mr. Henry Hanna, K.C., and Mr. J. C. Lardner, M.P., appeared for the prisoner, who pleaded not guilty. Major Kimber, prosecutor, outlined the case for the Crown. He stated that during the week of the rebellion a man named Ashie, who had been sentenced to death, set out with armed rebels, took possession of various police barracks, made policemen prisoners, and ultimately came to a pitched battle with the constabulary at Ashbourne, where a county inspector was mortally wounded, a district inspector was killed, and a number of constables were wounded. Quigley was seen on the road on his motor-cycle, and later in communication with the rebels. On his premises were discovered a rifle, a shot gun, some ammunition, and seditious literature. At the adjourned hearing on Thursday the accused handed in a written statement declaring that he had no hand, act, or part in the rebellion, and explaining that explosives found at his place were for quarrying purposes. Witnesses gave evidence that the accused was associated with the National Volunteers, whose policy was in support of the Irish party led by Mr. Redmond. Mr. P. White, M.P. for North Meath, declared that he had never known the accused to express views in sympathy with Sinn Féin, but quite the contrary. On Friday Mr. Hanna, K.C., made a powerful address on accused's behalf. The Court found Mr. Quigley not guilty of the charge, and he was accordingly released.

**REDUCED STREET GAS LIGHTING BUT NO REDUCED CHARGES.**—LEISTON GAS CO., LTD., v. LEISTON-CUM-SIZEWELL URBAN DISTRICT COUNCIL. —In the Court of Appeal on Friday, judgment was given by the Lord Chief Justice, Lord Justice Warrington, and Mr. Justice Scrutton in an appeal by the defendant council from a decision of Mr. Justice Low, reported in our issue at the time, which raised an important question as to the effect on gas contracts of the regulations restricting the lighting of streets. The dispute arose in a manufacturing village in East Suffolk, the company having sued the council for a sum due under a contract for lighting the town and maintaining the street standards. The amount in question was £157, representing three quarterly payments. The contract was made between the parties in June, 1911. When the war broke out the lighting was reduced in accordance with the orders of the competent military authority for the district, and three months later the council refused to pay the amount due to the company, on the ground that the contract was void, because the object for which it was made had become illegal. Mr. Justice Low held that the contract was valid, since the exercise by the authorities of their powers under the Defence of the Realm Act did not render the contract either unlawful or impossible of performance. He therefore gave judgment for the plaintiffs for the amount claimed, with costs. From this decision the defendants appealed. In the present judgment the Lord Chief Justice held that the payment of the sum due under the contract had not become illegal because it covered not only the supply of gas, but work that the gas company had to do at the present time in keeping the appliances intact so that the street lighting might be at once continued when the regulations were relaxed. In written judgments, Lord Justice Warrington and Mr. Justice Scrutton concurred, and the appeal was accordingly dismissed, with costs against the council.

**RE A. W. NEAL (COSTSTONE DECORATIONS, ETC.).** This estate has been administered under the supervision of a committee of three of the creditors. Practically the whole of the assets of any value, with the exception of the stock, were claimed by the mortgagees, who commenced proceedings *prior* to the receiving order for and obtained the appointment of a Receiver, who took possession of the bankrupt's office and premises in Mortimer Street, and proceeded to complete the works on hand and collect the book debts. The trustee was advised that the mortgagees' claim to the works on hand and the book debts was bad as against him as trustee, and he endeavoured to effect an arrangement with a view to avoiding proceedings, but this was not possible, and the trustee ultimately obtained an order of the court directing that the book debts and the

moneys due on the work in hand as at the commencement of the bankruptcy belonged to the estate. This, however, has taken a very long time, and has been attended with considerable expense, which could not be avoided, the action only recently having been finally settled. The remainder of the book debts as far as possible have been collected, the last two or three amounts having only recently been received. They have proved a very troublesome lot, many being disputed on various grounds, and those outstanding are considered irrecoverable. The values placed by the debtor on the various assets were in the majority of cases considerably overestimated, and the most has been made of what could be realised. The delay in closing the estate has been unavoidable, and is accounted for principally by the time occupied in disposing of the action before referred to and the difficulty in the collection of the book debts. The debtor's statement of affairs estimated the assets at £1,558 15s. 5d. The receipts have been £783 1s. 4d. A first and final dividend is payable of 2s. 0½d. in the pound. Creditors can obtain any further information at the office of the trustee, Mr. Fred. Wm. Davis, 95-97, Finsbury Pavement, E.C.

## Our Office Table.

The large number of men possessing surveying and constructional qualifications, who are now being called up for military service, makes it impracticable for the authorities in all cases to take advantage of their professional experience by allocating them to the technical branches of the army. It may, therefore, be of interest to some to hear that the Secretary of the Surveyors' Institution is in a position to say that Lieut.-Col. Cranfield, Commanding 3-7th D.C.O. (Middlesex Regt.), is prepared to give members of the Institution or their assistants an opportunity of enlisting in that battalion, and, as far as possible, to allow them to serve together in the same platoon. Intending recruits should communicate direct to the headquarters of the Battalion at Solefields Camp, Sevenoaks.

The Housing Committee of Newcastle-on-Tyne Corporation reported to the City Council on Wednesday, as to the expenditure on the Walker housing scheme. The report stated that, owing to the inability of the builders to enter into contracts satisfactory to the committee for the erection within the period stipulated by the Ministry of Munitions as a condition of the Exchequer grant-in-aid for the erection of 336 dwellings approved by the council on December 6, it has not been possible to proceed with the scheme, and the Local Government Board therefore propose to cancel the sanctions issued for borrowing £63,299. Expenditure amounting to £1,018 14s. 9d. has been incurred for architect's and quantity surveyor's fees, tenants' compensation and expenses incidental to the negotiations with the Ministry of Munitions and the Local Government Board in connection, not only with the reduced proposal for 336 dwellings, but also with the scheme for development of 16½ acres referred back for further consideration on December 2, and the larger scheme for the development of 28½ acres approved by the council in May, 1915.

Following up the announcement which he made on the occasion of his election as Mayor of Carnarvon that one of his objects during his year of office would be to endeavour to get possession for the public of the old walls of the town, Mr. Charles A. Jones is now in a position to state that a substantial beginning has been made. Mrs. Brunton, a daughter of the late Sir John Puleston, at one time Constable of Carnarvon Castle, has presented what is known as Puleston Tower and a portion of the adjoining wall. This will be handed over to the Commissioners of Ancient Monuments for restoration, and it is understood that it will receive immediate attention. The remaining towers as well as the intervening lengths of wall continue in the hands of private owners, but the Mayor hopes that Mrs. Brunton's example will soon be followed by others.

Inquiries having been made regarding the memorial to J. M. N. Whistler by M. Augusto Rodin, organised by the International Society of Sculptors, Painters, and Gravers, the committee of the memorial sends us the last letter received from M. Rodin, dated April 13, 1916:—"Le Monument Whistler était presque fait lorsque la guerre est venue, et je n'y ai plus travaillé. C'est la première chose que je vais faire sitôt que je serai un peu libre. Je ne peux répondre à vos souscripteurs en ce moment, mais six mois après la guerre terminée, le monument pourra se mettre à Londres. Ces six mois, je les compte pour la fonte du bronze, risque à rectifier de quelques mois.—Aug. Rodin." The entire sum required for the memorial has been collected, invested, and placed in the hands of trustees.

The Prime Minister of Australia, Mr. W. M. Hughes, in introducing on Friday a deputation of zinc producers in Australia to the Secretary of State for the Colonies, Mr. Bonar Law, with the object of laying before his Majesty's Government proposals involving a wide avenue of employment, explained that the scheme, which was Imperial in its scope and objects, involved the erection of smelting works in Britain and the exclusion of German spelter after the war. While providing for preferential treatment of the products of the Empire, a fair share of raw materials would be allotted to France and Belgium. The deputation own and control all the zinc ores produced in Australia. Details of the scheme will be announced later. Mr. Bonar Law undertook to consider the proposal, with a view to placing it before the Government.

The partnership hitherto subsisting between R. J. Hewett and W. S. Alger, builders and builders' merchants, Cleveland Works, Acton Green, Middlesex, under the style of R. J. Hewett, has been dissolved.

We regret to hear that Major A. T. Davis, Shropshire Light Infantry, has been wounded. Major Davis is the county surveyor of Salop, and a past-president of the Institution of Municipal and County Engineers.

At Crompton, Lancs, on Friday, Mr. P. M. Crosthwaite held a Local Government Board inquiry into an application by the urban district council for sanction to borrow £10,202 for carrying out works of sewerage.

At the annual festival of Bishops' College, Cheshunt (formerly the College Chapel of Lady Huntingdon's Connexion), last week, the library was reopened, after internal alterations devised by Sir Thomas G. Jackson, R.A.

Miss Ethel Louisa Lloyd, eldest daughter of the Mayor of Dudley (Mr. S. C. Lloyd), was married on the 5th inst. to Lieutenant Arthur Howard Dickenson, architect and surveyor, Dudley, now serving with the Royal Engineers.

The opening took place on Monday in last week of tenement dwellings in Main Street, Calton, built in connection with the Glasgow Corporation's housing scheme. The total cost, inclusive of land, was £6,065. The houses are let at a weekly rent of 6s., including rates.

A plan of the Gladstone Memorial for Edinburgh, showing the position in the suggested site for the statue itself, was before a meeting on Friday of the Sub-Committee of the Streets and Buildings Committee of the Edinburgh Town Council, and is to be further considered.

The new church of St. Barnabas, in Pishanger Lane, Ealing, consecrated by the Bishop of London last week, has been built from designs by Messrs. Shearman and Tyler, of Berners Street, W., and Winchester. The building is French Gothic in style, and accommodates 1,000 people in the nave. Messrs. J. Burges and Son, of Wimbledon, were the contractors, and the cost has been £12,500. The two towers and guild chapel have yet to be added.

The new South London Hospital for Women, which has been in course of building since 1912, on the west side of Clapham Common, will be opened by the Queen on Tuesday, July 4. Georgian in style, built of red brick, with Portland stone dressings, it contains four general wards, a children's ward, wards varying in size from one to eight beds for paying patients, an isolation department on the roof level, and X-ray and pathological departments. It provides beds for eighty patients. We illustrated this building, which has been erected from plans by Messrs. Alfred H. Hart and P. Leslie Waterhouse, in our issue of the 17th ult.



## CHIPS.

On account of ill-health, Mr. A. R. Finch has resigned his position as borough engineer of Kensington.

New church buildings are being built at Ladbroke Road, Kensington. The contractors are Messrs. Dove Brothers.

Lieut. Colonel Cecil Bradley, the borough surveyor of Bridlington, has been awarded the Distinguished Service Order.

Mr. James Park, builder, of Cransford Road, Aberdeen, who died on February 14 of this year, left a gross amount of £18,910.

The Provisional Order creating Buxton a borough has passed through all stages as an unopposed measure in the House of Lords.

The city council of Nottingham is making an application to the Local Government Board for a loan of £5,120 for the provision of additional wards at the Bagthorpe Isolation Hospital.

The contract for the erection of a large number of buildings at Coventry under the Munitions housing scheme has been taken by Mr. James Carmichael, of Trinity Road, Wandsworth.

A new school, provided by the Northumberland Education Authority at a cost of £4,900, has been formally opened at North Seaton. Messrs. T. Headley and Sons, of Blyth, were the contractors.

The partnership heretofore subsisting between E. P. Archer and F. M. Stoneham, architects and surveyors at Nicholas Lane, E.C., under the style of Meakin, Archer, and Stoneham, has been dissolved.

The dissolution is announced of the partnership hitherto subsisting between F. E. F. Bailey and P. H. Solon, carrying on business as architects at Walsall, Staffordshire, under the style of Bailey and Solon.

On the recommendation of the housing and town-planning committee the Huddersfield Town Council have decided to apply to the Local Government Board for financial assistance in building 300 working-class houses.

The new Roman Catholic Church of St. Lawrence at Lartington, near Barnard Castle, built at a cost of nearly £3,000, has been formally opened. The builder and designer was Mr. Anthony Lyons, of Norton, Malton.

As a souvenir of his chairmanship of the City of London Schools Committee for two years in succession, Mr. Banister Fletcher, C.C., is to be presented with his portrait in oils by the members. Mr. Seymour Lucas, R.A., has received the commission.

An inspector under the Local Government Board has held an inquiry at Pantyllynion into an application by the Amman Valley Joint Sewerage Board for sanction to borrow £36,945 for the proposed joint sewerage scheme. Mr. J. T. Wood, of Liverpool, the engineer, explained the scheme. There are four local authorities concerned.

At the last meeting of the city council of Gloucester it was announced that Mr. Richard Read, A.M.I.C.E., city surveyor, chamberlain, and waterworks engineer since 1878, had tendered his resignation, to take effect on June 24. The announcement was received with expressions of regret, and it was stated that Mr. Read's services will be made available in a consultative capacity.

The Rev. Canon Greenwell, who is ninety-six years of age, presiding last week over the annual meeting of the Durham and Northumberland Archaeological and Architectural Association, said he felt he was rapidly going downhill, but he hoped to fulfil his presidential duties during the year. He was re-elected president. Referring to the repairs now in progress at Durham Cathedral, he said a great deal of money was being absolutely thrown away. He did not believe a single syllable about the insecurity of the nave. It was an entire figment, and much more useful work could be done in other portions of the building.

At Clayton-le-Moors, near Accrington, on Saturday there was opened the new Mercer Park, which has been taken from the estate of the late Miss Maria Mercer, eldest daughter of Mr. John Mercer, a chemist, who invented the process for the mercerisation of cloth. Miss Mercer left in her will £5,000 for the benefit of Clayton-le-Moors, and this sum the trustees have expended in acquiring eleven acres of land for the park. In addition, they provided from the residue of the estate £6,000 for the laying out of the grounds, etc., and £5,000 as an endowment, to be used for upkeep. Included in the park is Openshaw House, a former residence of the Mercer family, which has been converted into a museum.

Mr. T. C. Gatch's picture "The Flag" has been presented to the art gallery of his native town, Kettering, by Mr. John Kidner.

The urban district council of Mitcham have appointed Mr. W. M. Vale, employed for the past eight years in the borough surveyor's office at Yeovil, as assistant surveyor.

Mr. Joseph Constantine, a Middlesbrough shipowner, has given £40,000 towards a scheme for the establishment of a technical college in the town, and other local firms have promised £15,000.

A New York cinema palace is being built in York Street, Belfast, from designs by Mr. Thomas Houston, of Wellington Place, in that city. The builders are Messrs. Thornbury Brothers, Ltd., of Ravenhill Road, Belfast.

At Penicuik, new council offices, designed in the Scottish Baronial style, with crow-stepped gabled facade, were opened last week. The property of the parish council, the building will also afford office accommodation for the local town council and school board, and Glen-corse parish council and school board.

The death occurred at his residence, 12, Gordon Square, Whitley Bay, on Wednesday, at the age of 75 years, of Mr. Edward Waugh, who was one of the oldest-established estate agents in Gateshead. He was at one time a member of the Gateshead Town Council, and served for many years on the Gateshead Board of Guardians and on other public bodies in the locality.

The Imperial trade correspondent at Toronto (Mr. F. W. Field) reports that a company which has been operating two stores (one a departmental store and the other a high-class furniture store) in that city for many years is increasing its capital to 7,500,000 dol. (about £154,000) for the purpose of erecting new premises and acquiring a departmental store at Montreal as a subsidiary enterprise.

A hospital block has been erected at Cambridge for the corporation from plans prepared by Mr. Chart, M.S.A., F.S.L., of Croydon. The building is cruciform, with three single-bed cubicles in each wing, the cubicles being separated by plate-glass partitions, so that all the beds can be seen from the duty room, but the door of each cubicle opens out into the external air, so that each cubicle can be adapted for a subsidiary disease.

The Hollarne Museum at Bath has been transferred from Charlotte Street to more spacious quarters in Sydney College, at the end of Pulteney Street. The interior has been gutted, and rebuilt to show the collection to better advantage. The curator, Mr. Dudley Wallis, and the trustees have had the help and advice of the officials of the Victoria and Albert Museum and the British Museum, with the result that the selection and display of the pictures and articles of vertu are greatly improved.

The church council of St. Mary's, Leicester, have met to consider a report by Messrs. Seal and Riley, Horsefair Street, Leicester, as to the spire of the parish church. The architects stated that about 40 ft. of the spire, together with its cap, is unsafe and should be removed, at an estimated cost of £100. To replace it in Weldon stone and to restore the spire generally would cost a further £500 at least. The council have not decided whether to rebuild the beautiful spire or merely to remove the decayed masonry, and leave the spire in a truncated condition until the arrival of better times.

The will of the late Mr. William Leiper, R.S.A., architect, who resided at Terpersey, Helensburgh, has been lodged in the Register House, Edinburgh, under date March, 1913, with subsequent codicil. There are several bequests of a personal nature. He bequeaths to the National Gallery of Scotland the portrait of his mother by William McTaggart, R.S.A., and the oil-painted portrait by Thomas Couture (French artist). There is also a bequest to the Royal Scottish Academy of the sum of £500, to be applied for such purposes in connection with the Academy as should be thought fit.

At the meeting on Wednesday of the corporation of Birkenhead a member protested against the action of the Local Government Board and the Treasury in refusing to allow the contracts in connection with the new water supply to be proceeded with. As a result, the £450,000 expended upon the nearly completed reservoir was lying absolutely idle, and the ratepayers had to find £21,000 a year interest without receiving a penny worth of water in return, since they were not allowed to lay the mains to the borough. In reply, Alderman Bloor said the corporation had now received permission from the Treasury to complete the Alwen dam and the large tank at Barnston. Arrangements had been made to obtain a supply of water in case of emergency.

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Eltham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

Telephone: Gerard 1291.

Telegrams: "Timeserver, 1-strand, London."

RECEIVED: R. K. S. G. Co., Ltd., G. S. and Co., Ltd.—W. J. and Co., F. J. P. and Co., Ltd.—W. S. C.—H. H. S. Co., Ltd.—S. A. A., Ltd.—B. S. Co., Ltd.—M. and Co., Ltd.

D. R. S.—No

Curr. D. H.—Thanks, please send.

C. P.—We know nothing of the people named.

R. A.—Better write to the journal in which it appeared. We have no space for comments of the kind you send.

G. F. B.—At present there is nothing to hinder you from calling yourself an architect and practising as such, and you are probably quite as well qualified as some that do! If you really wish to qualify as an architect your proper course is to pass the examinations of the R.I.B.A., or the Society of Architects, particulars of which may be obtained of the secretaries of those bodies.

URGENT.—PLEASE NOTE.—To prevent disappointment, owing to restricted and later postal deliveries, it is not safe to wait till Tuesday morning to send us advertisements for the current week's issue. Many reach us after 3 p.m., at which hour we go to press on Tuesday with Wednesday's issue. We also respectfully ask readers to order THE BUILDING NEWS regularly of their newsagent or bookstall. With the present shortage of paper and probable still further rise in its price, it is futile to expect a newsagent to saddle himself or us with surplus unsold copies to oblige chance customers, on which, moreover, he or we have to pay heavy and increasing carriage charges.

## MEETINGS FOR THE ENSUING WEEK.

SATURDAY (June 17).—Institution of Municipal and County Engineers, West Midland District Meeting at the Guildhall, Shrewsbury. "Informal Notes on the Municipal Undertakings of Shrewsbury," by A. W. Ward, borough surveyor, and "Notes on the Trial of Road Materials treated with Bituminous Binders in the County of Salop," by M. S. Stobbs, acting county surveyor, Shropshire, 11.30 a.m.

MONDAY (June 19).—Royal Institute of British Architects. Presentation of the Royal Gold Medal, 4 p.m.

Mr. Ernest Edward Stapleton, of Messrs. Stapleton and Sons, builders, of Stoke Newington and Palmer's Green, died on Thursday at his residence in Knightland Road, Upper Clapton, aged 42 years.

The new church at Straide, Co. Mayo, is completed, and will be dedicated on the 29th inst. It is a memorial to the late Michael Davitt, who was a native of the place, and has been built from plans by Messrs. W. H. Byrne and Son, Suffolk Street, Dublin.

A party of the members of the Liverpool Architectural Society visited the new Cunard offices at the Liverpool Pierhead on Thursday afternoon, conducted by Messrs. Wilink and Thicknesse, the architects. The premises were opened on Monday in this week.

The dedication service for the memorial to the late Prebendary Sealy in the parish church at St. Helen, Abbotsham, was recently held. The memorial takes the form of fixing of new tiling to the sanctuary, and is of polished marble. Two varieties have been used—viz., blue Turquin and black Irish marble. The pattern is chiefly composed of hexagonal and diamond-shaped tiles. The blue Turquin marble is quarried near Carrara. The work has been carried out by Messrs. Harry Hems and Sons, of Exeter.

Wargrave Church, which was wantonly burnt down by suffragists on Whit Monday, 1914, has been rebuilt, and will be opened on July 22. In the course of the rebuilding various interesting architectural discoveries have been made, including fragments of a thirteenth-century doorway, a thirteenth-century ambury in the transept, and some vaults, long bricked up under the chancel. It was also found a year ago during the work that the existing red-brick tower of the days of Henry VII. is a re-casing of the original Norman tower. The cost of rebuilding the church has exceeded £13,000.

## LATEST PRICES.

N.B.—All prices must be regarded as merely approximate for the present, as our usual sources of information are in many cases failing us.

## TIMBER.

Owing to stoppage of supplies all prices have advanced considerably.

IRON.		Per ton.	Per ton.
Rolled Steel Joists, English.	£20 0 0 to £21 0 0		
Compound Girders, Ordinary			
Sections	22 0 0	23 0 0	
Compound Stanchions	23 0 0	24 10 0	
Wrought-Iron Girder Plates	13 10 0	13 12 6	
Steel Girder Plates	13 15 0	13 17 6	
Steel Sheets (Single or Double)	11 10 0	—	
Steel Strip	10 15 0	—	
Bar Iron, good Staffs	11 15 0	—	
Mild Steel Bars	18 0 0	18 10 0	
Steel Bars, Ferro-Concrete			
Quality (basis price)	18 0 0	—	
Bar Iron, good Staffs	15 10 0	15 15 0	
Do., Lowmoor, Flat, Round, or Square	24 0 0	—	
Do., Staffordshire Crown	16 0 0	16 10 0	
Boiler Plates, Iron—			
South Staffs	8 0 0	8 15 0	
Best Smedshill	9 0 0	9 10 0	
Angles, 10s, 12s, 20s, per ton extra.			
Builders' Hoop Iron, for bending, £13 5s. to £13 15s.			
Do., galvanized, £20 to £20 10s. per ton.			
Galvanized Corrugated Sheet Iron—			
No. 18 to 20. No. 22 to 24.			
6ft. to 8ft. long, inclusive	£30 0 0	£30 10 0	
Best ditto	32 0 0	32 10 0	
Cast-Iron Columns	£13 10 0	£14 0 0	
Cast-Iron Stanchions	13 10 0	14 0 0	
Rolled-Iron Fencing Wire	8 15 0	9 5 0	
Rolled-Steel Fencing Wire	7 15 0	8 0 0	
Do., Galvanized	6 5 0	6 15 0	
Cast-Iron Sash Weights	7 0 0	7 10 0	
Cut Floor Brads	15 0 0	15 5 0	
Corrugated Iron, 24 gauge	16 0 0	—	
Galvanized Wire Strand, 7 ply,			
14 B.W.G.	14 5 0	—	
B.B. Drawn Telegraph Wire, Galvanized,			
0 to 8	10	12	B.W.G.
£10 10s. £10 15s. £11 0s. £11 5s. £11 15s. per ton.			
Cast-Iron Socket Pipes—			
3 in. diameter	£7 5 0	£7 12 6	
4 in. to 6 in.	7 0 0	7 2 6	
7 in. to 24 in. (all sizes)	7 7 6	7 12 6	
(Coated with composition, 5s. 0d. per ton extra.			
Turned and bored joints, 5s. per ton extra.)			
Do.—			
Cold Blast, Lillieshall	137s. 6d.	142s. 6d.	
Hot Blast, ditto	100s. 0d.	107s. 0d.	
Wrought-Iron Tubes and Fittings—Discount off			
Standard Lists f.o.b. (plus 2½ per cent.)—			
Gas-Tubes	58½ pc.		
Water-Tubes	55		
Steam-Tubes	51½		
Galvanized Gas-Tubes	47½		
Galvanized Water-Tubes	45		
Galvanized Steam-Tubes	37½		
OTHER METALS.			
Lead Water Pipe, Town	£41 0 0 to		
Country	42 0 0		
Lead Barrel Pipe, Town	42 0 0		
Country	43 0 0		
Lead Pipe, tinned inside, Town	43 0 0		
Country	44 0 0		
Lead Pipe, tinned inside and outside	45 10 0		
Country	46 10 0		
Composition Gas-Pipe, Town	44 0 0		
Country	45 0 0		
Lead Soil-pipe (up to 4 in.) Town	44 0 0		
Country	45 0 0		
(Over 4 in. £1 per ton extra.)			
Lead, Common Bricks	25 10 0	26 0 0	
Lead, 4lb. sheet, English	35 15 0	36 5 0	
Lead Shot, in 28lb. bags	24 15 0		
Copper-Sheets, Sheathing & Rods	170 0 0	171 0 0	
Copper, British Cake and Ingot	153 0 0	155 0 0	
Tin, English Ingots	206 0 0	207 0 0	
Do., Bars	207 0 0	208 0 0	
Pig Lead, in 100 lb. Pigs, Town	33 12 6	34 12 0	
Sheet Lead, Town	41 10 0		
Country	41 10 0		
Odourless White Lead	58 0 0		
Refined Red Lead	58 0 0		
Sheet Zinc	145 0 0		
Spelter	93 0 0	110 0 0	
Old Lead, against account	29 5 0		
Tin	10 10 0		
Cut nails (per cwt. basis, ordinary brand)	1 3 0		
For 5 cwt. lots and upwards.			

## I BUY

## SCRAP METALS

ARTHUR P. COLLINS, Snow Hill, BIRMINGHAM.

Phone Central 1920. Telegrams "Metalise, Birmingham."

Bankers. The National Provincial Bank of England, Ltd., Bennett's Hill, Birmingham.

## SLATES.

in. in.		£ s. d.	per 1,000 of
Blue Portmadoc	20 x 10	11 2 6	1,200 at r. stu.
First quality	16 x 8	5 10 0	
Blue Bangor	20 x 10	10 12 6	
First quality	20 x 12	11 5 0	
First quality	20 x 12	11 7 6	
First quality	20 x 12	11 0 0	
First quality	20 x 12	10 12 6	
First quality	16 x 8	5 10 0	

Enreks unfading		in. in.	£ s. d.	per 1,000 of
green	20	10	15 17 6	1,200 at r. stu.
"	20	12	18 7 6	"
"	18	10	13 5 0	"
"	16	8	10 5 0	"
Permanent Green	20	12	11 12 6	"
"	18	10	9 12 6	"
"	16	8	6 12 6	"

## BRICKS.

(All prices net.)

First Hard Stocks	£2 0 0	per 1,000 alongside, in
Second Hard Stocks	1 16 0	" " " " " "
Mild Stocks	1 14 0	" " " " " "
Picked Stocks for		delivered at
Facings	2 12 0	rally station.
Flettons	1 10 0	" " " " " "
Pressed Wire Cuts	1 18 0	" " " " " "
Red Wire Cuts	1 14 0	" " " " " "
Best Fareham Red	3 12 0	" " " " " "
Best Red Pressed		" " " " " "
Ruabon Facing	5 5 0	" " " " " "
Best Blua Pressed		" " " " " "
Staffordshire	5 0 0	" " " " " "
Ditto Bullnose	5 5 0	" " " " " "
Best Stourbridge Fire-		" " " " " "
bricks	4 15 0	" " " " " "
2½ in. Best Red Ac-		" " " " " "
erating Plastic	4 10 6	" " " " " "
Facing Bricks		" " " " " "

3½" Accrington Best Red Plastic Facing Bricks	£2 10 0	per 1,000
3½" ditto Second Best Plastic ditto	2 2 6	"
3½" ditto Ordinary Secondary Bricks	1 11 3	"
3½" ditto Plastic Engineering Bricks	1 17 6	"
Sewer Arch Brick, not more than 3½ in		
thickest part	2 0 0	"
3½" Chimney Bricks fit for outside work	2 6 0	"
3½" ditto ditto through and through	2 0 0	"
3½" Beaded, Ovolo and Bevel Jamb; Octa-		
gonous; 2½ and 1½ radius Bullnoses; Stock	3 7 6	"
pattens		
Accrington Air Bricks, 9" x 2 course deep, each	0 0 6	"
Ditto ditto 9" x 1 course	0 0 3	"
Accrington Camber Arches:—		
3 course deep 4½" soffit, per foot opening..	0 1 3	"
4 " " " " " " " " " "	0 1 8	"
5 " " " " " " " " " "	0 2 1	"
6 " " " " " " " " " "	0 2 6	"
3 " " " " " " " " " "	0 2 1	"
4 " " " " " " " " " "	0 2 11	"
5 " " " " " " " " " "	0 3 6	"
6 " " " " " " " " " "	0 4 6	"
Net free on rail, or free on boat at works.		

## GLAZED BRICKS.

HARD GLAZES (PER 1,000).

White, Ivory, and		Best.		Seconds.	
Salt Glazed.	Buff, Cream, & Bronze.	Colours.	Colours.	Colours.	Colours.
Stretchers—					
£13 7 6	£12 7 6	£14 17 6	£18 17 6	£13 17 6	
Headers—					
12 17 6	11 17 6	14 7 6	18 7 6	13 7 6	
Quoins, Bullnose, and 4½ in. Flats—					
16 17 6	15 17 6	18 17 6	22 7 6	17 7 6	
Double Stretchers—					
18 17 6	17 17 6	21 17 6	25 7 6	19 7 6	
Double Headers—					
15 17 6	14 17 6	18 17 6	22 7 6	16 7 6	
One side and two ends, square—					
19 17 6	18 17 6	22 17 6	27 7 6	20 7 6	
Two sides and one end, square—					
20 17 6	19 17 6	23 17 6	27 17 6	21 7 6	
Splays and Squints—					
18 7 6	17 7 6	21 17 6	25 17 6	18 17 6	
Stretchers cut for Closers and Nicked Double					
Headers, £1 per 1,000 extra.					
Compass Bricks, Circular and Arch Bricks, not exceed-					
ing 9 x 4½ x 2½ in., of single radius, £6 per 1,000 over					
and above list for their respective kinds and colours.					
The following prices of Special Bricks are plus 12½%:—					
Plinth and Hollow Bricks, Stretchers and Headers—					
5d. each 4d. each 6d. each 6d. each 5d. each					
Double Bullnose, Round Ends, Bullnose Stops—					
5d. each 4d. each 6d. each 6d. each 5d. each					
Round Internal Angles—					
4d. each 3d. each 5d. each 5d. each 4d. each					
Camber Arch Bricks, not exceeding 9 x 4½ x 2½ in., any					
kind or colour, is. 2d. each.					

## MOULDED BRICKS.

Stretchers and Headers—		8d. each	8d. each	8d. each	8d. each
Internal and External Angles—					
1/2 each 1/2 each 1/2 each 1/2 each 1/2 each					
Sill Bullnose, Stretchers, and Headers—					
5d. each 4d. each 6d. each 6d. each 5d. each					

Majolica or Soft Glazed Stretchers and	per 1,000
Headers	£23 17 6
" " " " " " " " " "	
Quoins and Bullnose	28 17 6
These prices are carriage paid in full truck loads	
to London Stations.	

## SAND AND BALLAST.

Thames Sand		s. d.
Pit Sand	7 0	per yard, delivered.
Thames Ballast	6 0	" " "

## CEMENT AND LIME.

Best Portland Cement		s. d.	s. d.	Per ton.
Ground Blue Lias Lime	36	0 to 41	0	delivered.
Exclusive of charge for sacks.				
Grey Stone Lime	13 6	to 14 0		delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rail-				
way station.				

## STONE.\*

Yellow Magnesian, in blocks	per foot cube	£0 3 3
Red Mansfield, ditto	"	0 2 9
Red Corsehill, ditto	"	0 2 6
Derley Dale, ditto	"	0 2 5
Greenshill, ditto	"	0 2 4
Cloesburn Red Freestone, ditto	"	0 2 2
Acaster, ditto	"	0 2 0
Beet Stone, delivered on rail		
at Seaton Station		0 1 1
Ditto, delivered at Nine Elms		
Station		0 1 7½
Chilmark, ditto (in truck at		
Nine Elms)		0 1 10½
Hard York, ditto		0 2 0
Do. do. 6 in. sawn both sides,		
loadings, random sizes	per foot sup.	2 8
Do. do. 3 in. slab sawn two		
sides, random sizes	per foot cube	0 1 3
Bath Stone—Delivered in rail-		
way trucks at Westbourne		
Park, Paddington (G.W.R.),		
or South Lambeth (G.W.R.),		
Delivered in railway trucks		0 1 7
at Nine Elms (L. & S.W.R.)		
Delivered on road wagons		0 1 8½
at Nine Elms Depot		
Portland Stone—Brown Whit-		
bed in random blocks of 20 ft.		
average, delivered in railway		
trucks at Westbourne Park		
(O.W.R.), South Lambeth		
(L. & S.W.R.), or Nine Elms		
Delivered on road wagons at		
Pimlico Wharf or Nine Elms		
Depot		0 2 6½
White Basebed—2d. per foot cube extra.		
* All F.O.R. London.		

## TILES.

		s. d.	Divrd. at
Plain red roofing tiles	42	0	per 1,000 ry. sq.
Hip and Valley tiles	5	6	per doz.
Brosely tiles	50	0	per 1,000
Ornamental tiles	52	6	"
Hip and Valley tiles	4	0	per doz.
Ruabon red, brown, or brindled			
ditto (Edwards)	57	b	per 1,000
Ornamental ditto	60	0	per 1,000
Hip tiles	4	0	per doz.
Valley tiles	3	0	"
Selected "Perfecta" roofing			
tiles: Plain tiles (Peake's)	46	0	per 1,000
Ornamental ditto	48	6	"
Hip tiles	3	10	per doz.
Valley tiles	3	4	"
"Rosemary" brand plain tiles	48	0	per 1,000
Ornamental tiles	50	0	"
Hip tiles	4	0	per doz.
Valley tiles	3	8	"
Staffordshire (Hanley) Reds or			
brindled tiles	42	6	per 1,000
Hand-made sand-faced	45	0	"
Hip tiles	5	6	per doz.
Valley tiles	5	6	"
"Hartshill" brand plain tiles,			
sand-faced	45	0	per 1,000
Pressed	42	6	"
Ornamental ditto	47	6	"
Hip tiles	4	0	per doz.
Valley tiles	3	6	"

## OILS.

Rapeseed, English pale, per ton	£28 15 0 to £29 5 0
Ditto, brown	26 15 0
Cottonseed, refined	29 10 0
Olive, Spanish	39 0 0
Seal, pale	21 0 0
Cocoonut, Cochín	46 0 0
Ditto, Ceylon	42 10 0
Ditto, Mauritius	42 10 0
Palm, Lagos	32 5 0
Ditto, Net Kernel	35 0 0
Oleine	17 5 0
Sperm	30 0 0
Lubricating, U.S.	0 7 0
Petroleum, refined	0 0 62
Tar, Stockholm	1 6 0
Ditto, Archangel	0 19 6
Linseed Oil	0 3 4
Baltic Oil	0 3 7
Turpentine	0 3 8
Putty (Genuine Linseed	
Oil)	per cwt.
Pure Linseed Oil	0 11 0
"Story" Brand	0 11 0

## GLASS (IN CRATES).

English Sheet Glass	15 oz.	21 oz.	26 oz.	32 oz.
Fourths	43d.	6d.	64d.	73d.
Thirds	53d.	64d.	7d.	83d.
Fluted Sheet	6d.	7d.	—	—
Hartley's English Rolled	$\frac{1}{2}$ in.	$\frac{3}{4}$ in.	$\frac{1}{2}$ in.	—
Plate	4d.	43d.	43d.	43d.
		White.	Tinted.	
Figured Rolled		5d.	6d.	6d.
Reposuisse		43d.	53d.	—
Roll'd Sheet		43d.	—	—

# THE BUILDING NEWS

## AND ENGINEERING JOURNAL.

Effingham House.

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## OUR ILLUSTRATIONS.

The Cunard New Building, Pierhead, Liverpool.  
Messrs. Willink and Lockwood, of Liverpool, and  
Messrs. Mewes and Davis, of London, joint  
architects.

"Victory House," Cockspur Street, S.W. H.M.  
Department Board of Inventions (Admiralty),  
Messrs. Metcalf and Greig, architects.  
The Whiteley Homes, Whiteley Park, Burslem, near  
Weybridge, Surrey. The Central Cottages,  
Nurses' Block, with Pavilions, and Double Cot-  
tages. Working drawings, block plan, and  
details. Mr. Reginald Blomfield, R.A., M.A.,  
F.S.A., F.R.I.B.A., architect.  
Sketches in Italy and France, by Mr. Alick G.  
Horsnell, Soane Medallist and Tite Prize-man  
(from Florence, Nantes, and Le Grand Audelet).

### Currente Calamo.

Never has the Gold Medal of the R.I.B.A. been handed to a more worthy recipient than the distinguished Scottish architect, Sir R. Rowand Anderson, on whose behalf the Lord Provost of Edinburgh received it at the hands of Mr Ernest Newton, the President of the R.I.B.A., on Monday night. As has not been unusual, it has taken the Institute a long time to recognise the claims of our brethren beyond the Border to the honour it has liberally awarded to foreigners; but it is some satisfaction to feel that its first choice of a Scotsman is an architect whose long career is as much the pride of Englishmen as of his own countrymen, and that by none could it have been more gracefully expressed than by Mr. Newton, whose qualities are in many respects identical with those of the medallist, and equally the esteem of us all. Owing nothing to favouring circumstances, and little to the ordinary facilities of training, Sir Rowand Anderson made his mark quickly and unmistakably, and the long list of his subsequent works affords abundant evidence of the sustained force of his genius. In addition no man has done more to advance the cause of architectural education in Scotland or with greater success or freedom from self-advertisement. The heartiest congratulations of all will include the sincerest wishes for his speedy recovery from the illness that kept him at home on Monday, and that many years yet may be added to those which have been fittingly crowned with honours so worthily won. We published a portrait of Sir Rowand Anderson in his academical robes as Doctor of Laws of Edinburgh University in our issue of May 16, 1890. Of his works, we have illustrated, among others, Dunblane Cathedral, plan and perspective from south, December 1, 1893. (Sketches by E. F. C. Clarke of the west front, nave arcade, and south aisle of this cathedral were given in our numbers for May 20 and October 14, 1870; drawing of exterior and plans by J. B. Tyrman and interior view by J. S. Gibson in our issue of July 24, 1885; and a sketch of the west front by W. Ferguson in that for December 14, 1878.) McEwan Hall, Edinburgh University (plan, exterior

perspective, and two interiors), December 10, 1897; figure decorations of hall by W. M. Palin, December 11, 1896, and January 22, 1897; engineering laboratories, Dundee University College (double page and plans), November 28, 1913; restoration of Culross Abbey, January 18, 1907; Govan new parish church (exterior perspective and plan), November 21, 1884; lengthened chancel ditto (double page), March 22, 1912; monument to the Stirrings of Keir in Dunblane Cathedral, March 12, 1912; mural tablet to the late Earl of Wharmliffe in Newtyle Church, Forfarshire, March 12, 1912. We are giving next week illustrations of the Sir William Pearce Memorial Institute, Govan, designed by Sir Rowand, to be followed by other typical works.

Sir Aston Webb's protest in the *Observer*, on which we commented last week, has been reinforced in last Sunday's issue by timely letters from Mr. Ernest Newton, Mr. Reginald Blomfield, Mr. W. R. Letherby, and Mr. William Woodward. As Mr. Ernest Newton pithily puts it: Nature is against the bridge and is trying to destroy it by subtle corrosion, and it is only a morbid development of the British instinct to defend the friendless which is responsible for its continued existence. We much fear, however, that instinct will prevail, unless we are all up and doing, and that, as Mr. William Woodward warns us, we shall be sent to sleep with soapy promises. There is a letter in the same issue of the *Observer* from the general manager of the railway company which is a very artful plea indeed. We are told the promoters "have always been willing" to discuss the facts, and there is a very vague intimation that perpetuation of the eyesore is not desired. We know very well what the attitude of the railway company will be when once it has obtained a further lease of the life of the present obstruction! Opposition to the change of the location of the station will be redoubled, and the public will be harrowed with stories of interference with its convenience and the probability that it will be called on to pay for the change, and all to please a few sentimental architects! The only way to prevent this is to follow up the attack now and make the public understand what it is still to endure while the S.E. and C.R. Company

"squats in Charing Cross for ever," as Mr. Reginald Blomfield puts it, and defies us all.

In a recent number of *Home Words* (the Clifton Parish Church monthly magazine) there appeared a paragraph which has acquired a new and additional interest through the tragic death of Lord Kitchener. The paragraph, which is headed "The Kitchener Bell," proceeds to explain that this is "a bell of St. Mary's Church, Lakenheath, bears the name of 'Thomas Kitchener, churchwarden,' the ancestor of Lord Kitchener, who came to Lakenheath in 1693 as bailiff to Sir Nicholas Stuart. There are on the south side of the church thirteen graves and eleven tombstones of the Kitchener family. Not so very long ago, and during the war, the old oak frame on which the bells hung was found to be in a dangerous condition. A new steel frame has now been fixed in the tower, and safety is secured for Kitchener's bell. This may surely be held of happy augury." The superstitious, we fear, will argue that events have proved otherwise, and that the national loss we all mourn was foreshadowed by the decay of the old oak frame and the proximity of those thirteen graves.

Newman's Church in Dublin is the theme of a well-written appreciation by Mr. Robert Wilson of the Catholic University Church, Dublin, which was built by Cardinal Newman, and with regard to the design and structure of which not a few misstatements are current. The architect of the church, as our readers of course know, was Mr. John Hungerford Pollen, formerly Fellow of Merton College, Oxford, who in June, 1855, was appointed to the Chair of Fine Arts. To him Newman turned for the design, which was partly dictated by the circumstances of the site, which rendered any attempt at external magnificence quite inappropriate. The Byzantine style also favoured the possibilities of suitable decoration without the importation of skilled foreign workers, and enabled the architect to obtain beautiful results with men whose manual skill had not reached the highest point of technical perfection, and although Mr. Pollen worked in latter years in England with conspicuous suc-

cess in the style of the Early Renaissance, there is perhaps no better example of his skill than the Dublin University Church, and certainly no better instance of good results obtained in unlikely surroundings by simple means and at relatively small cost. Mr. Wilson briefly describes the building and its decorations, and dwells with legitimate emotion on its many historical and personal associations. The booklet is published at threepence by the Irish Industrial Printing and Publishing Co., Ltd., 49, Middle Abbey, Dublin, and contains a good interior view of the high altar, apse, and sanctuary. We are glad to see it stated that Mrs. J. Hungerford Pollen has in preparation a monograph on the building, to be illustrated by measured drawings and coloured plates, which will be welcomed by all who know the edifice and who knew and appreciated the genius and kindly nature of its architect.

In a suggestive article on "The Standardisation of Elements of Design in Domestic Architecture" in the current issue of the *Town Planning Review* Mr. Lionel B. Budden, A.R.I.B.A., points out that stock patterns for the elevations and details of dwellings—stock windows, doors and fireplaces—have been evoked by an irresistible demand by the operation of economic laws. These have not been forced upon a reluctant market, nor are they the product of amateur experiments and caprice. They have been created in response to actual needs. A profound fallacy is inherent in the theory that mechanical aids to production are in themselves vicious and incompatible with the achievement of beauty. The true defect of modern stock patterns—the vulgar nature of their conception and execution—is rarely mentioned by those most opposed to the use of fixed forms on any terms. Mr. Budden points out that the aim should be at simplicity of form, at quietness of treatment, such as was compassed by the architects and even in many cases by the builders of the latter half of the eighteenth century in their dwellings. The causes which forced acceptance of the principle of standardisation in domestic architecture are a hundredfold more insistent to-day. Our ideas ought to be expressed with distinction and the stock elements employed should be worthy of their place. The advances several practical proposals, including the organisation of the manufacturers of stock material and a propaganda directed by competent authority.

At a conference of co-operators, held under the auspices of the National Housing and Town-Planning Council at Lancaster, on Thursday, the following resolution, moved by Mr. Cameron, of the National Building Trades Council, was adopted:—"That this conference urgently directs the attention of the Government to the critical need for the provision of additional housing for the working classes, and, in respect of the national interest and responsibility in the matter, urges upon the Government to set aside no less than £20,000,000 to make

such advances to local authorities and other agencies as will enable them to provide houses at reasonable rentals, having regard to all necessary and equitable circumstances and conditions." Mr. Hunter, Manchester, moved a resolution, which was also carried, affirming that the time is ripe for the development of a co-operative housing policy, to include the usage by co-operative societies of the facilities for obtaining capital under Section 4 of the Housing and Town-Planning Act, the adoption of town-planning amenities, and the exercise of greater care in housing employees of the movement.

One unpleasant result of the adoption of the daylight saving scheme is an increase in the price of electric light. Economy in the use of artificial light was one of the grounds on which the scheme was commended, but at that time apparently the point of view of the electric light producing concerns had not been taken into account. Decreased receipts and the high price of coal are making it impossible for the companies to "carry on" at the old rates, and an all-round increase of 10 per cent. is threatened as from July 1. All the companies have not so far made up their minds, but should action be taken by those who have hinted at it, the others will almost inevitably have to follow suit. As an indication of what the proposed rise will mean, it might be mentioned that in a year the fifteen big London electricity companies generate nearly 252,000,000 units, while the fifteen borough councils supply 154,000,000.

#### ANIMALS THAT BUILD.

By STANLEY C. BAILEY, A.M.I.C.E.,  
F.G.S.

The ability to construct is practically absent in most mammals, with the exception of man, and a few others; neither is it present in reptiles, fishes, crustaceans, nor molluscs; on the other hand, it is well developed in most birds, some insects, spiders, caterpillars, and animalcules, but although it is a natural one both in men and other animals, it has only become so by gradual acquisition through long ages. The gorilla, chimpanzee, and orang-utan build rough nests of twigs, leaves, and moss in trees, to which the females and young retire at night, the male usually sitting at the foot of the tree to keep guard.

Beavers construct their dome-shaped dwellings of sticks and mud on the banks of rivers, and even go so far as to fell trees by gnawing away the trunks, using the bark and leaves for food, and forming dams across streams with the trunks in order to keep the entrances to their dwellings and burrows submerged. Some of the rodents, such as rabbits, squirrels, rats, and mice, build rough nests; that of the rabbit is of fur and hairs; the squirrel makes one of twigs, moss, and leaves, and rats and mice construct theirs of pieces of paper, hay, straw, and moss; the nest of the harvest mouse (*Mus minutus*) is made of grass and hay, and is of spherical shape—it is usually attached to wheat or oat stalks; while that of the dormouse (*Muscardinus avellanarius*) is also spherical, and is formed of dried leaves, grass, and moss in bushes close to the ground. The seals in Polar regions by continually coming up to "blow" through the same

hole when the ice is forming prevent the water freezing over the site of the hole, which is gradually covered by falling snow; this the seals push aside and eventually form a chamber which is known among the Eskimo as an "iglu" or "igloo." This is also the name applied to the dome-shaped snow-built huts of the Eskimos themselves. The majority of birds build nests, many of which are of beautiful construction, and exhibit considerable ingenuity; they are formed of a great variety of materials, but the several genera and species of birds usually keep to particular favoured materials.

Among the most curious and remarkable birds' nests the following may be mentioned, viz., the nest of the oven-bird (*Furnarius rufus*), of South America, which is entirely constructed of a mass of clay fixed to the branch of a tree. The nest measures about 10 ins. in length and 7 ins. in diameter, and is entered by a hole in the side leading to two tortuous chambers; the house martin (*Chelidon urbica*) builds a feather-lined nest, formed of little pellets of mud, which are stuck to the side of a building, generally just under the eaves; the welcome swallow (*Hirundo neoxena*), of South Australia, forms a cylindrical nest of mud about 4 ins. in diameter and 4 ins. high, lined with feathers; that of the nuthatch (*Sitta europea*) is also of mud; the flamingo (*Phoenicopterus antiquorum*) makes a mud nest about 18 ins. in diameter and 1 ft. to 2 ft. 6 ins. high, with a saucer-shaped hollow in the top; while the albatross (*Diomedea exulans*) makes a neat cylindrical nest about 1 ft. high, saucer-shaped inside, and made of clay, sedges, and tufts of grass.

The sand martin (*Clivaria riparia*) burrows a tunnel about a yard in length into the face of a sand cliff, and the sheld, or burrow-duck (*Tadorna cornuta*), drives a tunnel about 9 ins. in diameter and about 12 to 15 ft. in length, with a chamber at the end, into the foot of a sand hill, in which it makes its nest. The esculent swift (*Collocalia fuciphaga*), of Borneo and the Malay archipelago, builds a wonderful nest composed almost entirely of a gelatinous material secreted by the salivary glands of the bird, and plastered on to the steep rock faces of sea cliffs; the bird is quite black, and is smaller than the sand martin, the nests are of a cream colour, and the Chinese utilise them for making a soup. The nest of the Nilghiri swift (*Collocalia unicolor*), of Southern India, is similarly constructed, but it is dark coloured, and mixed with feathers, moss, and seeds.

Some birds in comparison to their size construct enormous nests of sticks; for instance, the lenateros, or fire-wood-gatherers (*Anumbins acuticaudatus*), of South America, build a nest from 12 to 18 ins. in diameter and depth, although the bird is only about the size of a sparrow. The sparrow-hawk (*Accipiter nisus*) forms a large nest of fir and fine twigs, about 2 ft. 6 ins. in diameter. The rook, crow, raven, jackdaw, wood pigeon, and stork also build their nests of twigs, and some of the North American swifts construct nests of sticks, stuck together with saliva. The various bower birds (*Chlamydodera*), of Australia, build curious "runs" during the mating season. These "runs" consist of sticks and twigs arranged vertically like miniature hedges, about 3 ft. long, 1 ft. high, and 1 ft. wide outside, with a passage way between a few inches wide. Each end of the run is decorated with pieces of bone, shells, and coloured seeds, fruit, etc. The gardener bower bird (*Amblyornis subalaris*), of British New Guinea, makes a still more elaborate



"run" or "play-house," usually about 3 ft. in diameter, and formed of a hedge of twigs and pieces of tree bark. This circular hedge is about 6 ins. wide and 3 ins. high. On one portion of the circumference an arched bower or shelter is formed of twigs, 1 ft. high and about 3 ft. in length. The enclosed area is decorated with flowers, coloured fungi, pieces of brightly coloured fruit, beetles, and other insects. The flowers and fruit are replaced by fresh quantities when their colours fade.

Some birds form curious pendulous nests. For instance, the San Geronimo swift (*Panyptila sancti hieronymi*), of Guatemala, selects an overhanging ledge of rock in a cliff, and from this it suspends its nest, which is about 2 ft. long and 6 ins. in diameter at the top, tapering to a few inches at the lower end, where

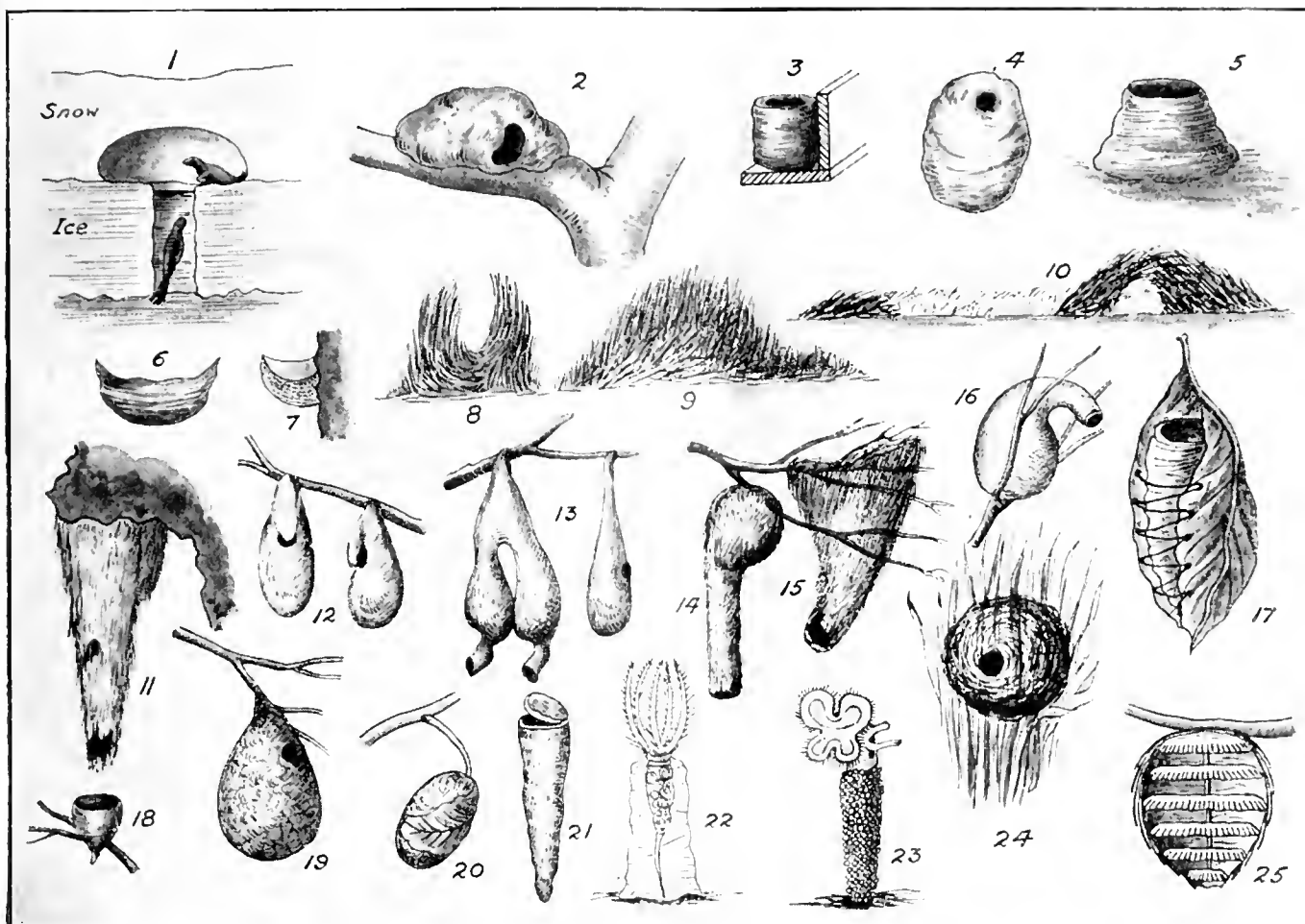
pendulous nests. The nest of the crowned titmouse (*Aegithalus coronatus*), of Western Turkistan, is made entirely of wool, and is about 6 ins. long and 4 ins. in diameter. It is shaped like a glass retort, and is beautifully and neatly made.

The great reed warbler (*Sylvia phragmitis*) and the fantail warbler (*S. cisticola*) construct their neat globular nests of dried grasses, which are twined round water reeds and rushes.

The tailor bird (*Sutoria sutoria*), of India and Ceylon, makes its nest of dried grasses and fibres, between the leaves of trees, the leaves being sewn together with fibres round the nest.

Humming birds (*Trochilus*) build the smallest nests. They are cup-shaped, from 1 to 2 ins. in diameter, and are formed of dried grass, wool, hairs, lichens,

Jamaica, make a hole in the ground and line it with silken web, the entrance being closed by a hinged door formed of mud and small pieces of twigs. The beautiful web of the garden spider (*Epeira diademata*) exhibits a considerable amount of ingenuity, and is constructed on a theoretically correct principle with strong radiating lines to a centre, and then across these concentric lines are run. The radiating strands are usually from 26 to 30 in number, and are on an average about 13 degrees apart; the concentric lines are about 3-16 of an inch apart near the centre and  $\frac{1}{8}$  of an inch towards the perimeter of the web, and are very regularly spaced. These latter lines have from four to ten large drops or beads of viscid material 1-64 in. in length, or 256 to 640 drops per lineal inch, and between each of these large drops there is a smaller one, but the



there is an entrance hole, the eggs being laid in a pouch at the top; the nests are constructed of the cotton-like filaments of the seeds of certain plants, secured together with saliva, and when completed the nests have the appearance of cream-coloured wool.

The sun birds build pretty little pendulous nests composed of fibres, grass, hairs, etc., from 6 to 9 ins. long, suspended from tree branches. These nests are entered at the top; while the Baltimore oriole and the crested cassique form their nests of vegetable fibres and grass; they are from 3 to 4 ft. in length, and 6 to 9 ins. in diameter, being suspended from trees, and entered at or near the bottom of the nest.

The weaver birds (*Textor*), of Africa, South-East Asia, and Australia, build extraordinary nests of dried grass and twigs. Among the sociable weavers (*Ploceus*) each nest group is formed of numerous separate nests, while the Baya weaver birds of India and Ceylon construct large

mosses, and vegetable fibres. That of Bulger's fantail (*Rhipidura bulgeri*) is 2 ins. in diameter.

The nest of the long-tailed-tit (*Parus caudatus*), which is usually built in the ivy of ivy-covered tree trunks, is constructed of dead leaves, moss, and lichens, and is of oval shape, with a small hole in the side. It is lined with feathers, and is beautifully made; while that of the chaffinch (*Fringilla serinus*), which is of moss and wool, with decorations of lichen, and a lining of hair and feathers, is also very exquisite.

Of the fishes, the male stickleback (*Gasterosteus aculeatus*) builds a nest formed of the stems and fibres of water plants, which is generally situated in a mass of weeds, the male fish keeping guard outside while the females deposit the ova, which are then fertilised by the male; the ruffes (a species of perch) also build nests. Among the Arachnida, the tarantula spider (*Lycosa nidifex*) and the trap-door spiders (*Pachylomerus*), of Southern Europe and

radiating strands are devoid of sticky material. The water spider (*Argyroneta*) forms a bell-shaped web, which is attached to aquatic weeds, with the mouth downwards; the spider then drives the water out of the bell by carrying bubbles of air down between its legs and releasing them below the nest.

Many insects are builders. For instance, the mason bee (*Chalcidomuraria*) constructs against a wall about eight simple cells formed of mud and grains of sand stuck together with saliva; the mud wasp (*Odynerus parietum*) constructs its single cells in mudbanks and also by making holes in the mortar of walls and forming a tube of mud. Another mud wasp (*Polistes gallica*) builds umbrella-shaped nests of mud cells, each of which converges to a point at the apex of the nest; the carpenter bee (*Xylocopa violacea*) bores holes in trees, in which it makes its nest; and the tree wasp (*Vespa sylvestris*) builds beautiful pendulous nests of wood pulp, which it chews and

forms into a paper. The first nest is usually made by a single wasp, or a few, and is about 1 in. in diameter; this is afterwards enlarged by a multitude of wasps by adding concentric layers until the nest reaches about 9 ins. or 1 ft. in diameter. Some of the nests of the tree wasps of Central Africa are of still larger size.

The aquatic larvae of the caddis flies (Phryganeidae), of which there are about 180 species in the British Isles, build beautiful little cases in which to protect their soft bodies. Those of *Limnephilus pellucidus* roll up small leaves to form their cases; *Phryganea grandis* and *Limnephilus rhombicus* use small pieces of twigs laid transversely; *Limnephilus flavicornis* employs small shells which are generally those of Planorbis, while *Lepidocerus niger* makes a neat habitation of sand grains cemented together with a glutinous substance. A species of caddis larva found near Boston, U.S.A., constructs a tube of sticks and attaches one end of it to a stone; close to the opening the larva erects a vertical silken net fastened to stones, to catch objects floating in the water. Another species burrows a vertical tunnel in mud, from which shaft it excavates lateral chambers.

Many beetles, especially the weevils, and the larvae of many beetles and moths are wood-borers and ground-tunnellers, and those of some moths and butterflies roll up leaves and fasten them together with silken threads.

The larva of the saw-fly (*Phyllostoma acens*), which feeds on the tissues of sycamore leaves, gets between the upper skin and the leaf skeleton and cuts a circular disc about  $\frac{3}{8}$  in. in diameter out of the upper skin, leaving only the skeleton to connect the skin to the leaf; the caterpillar then forms a closely-woven silken layer underneath its body, the connecting skeleton fibres shrivel, and the disc falls to the ground, the caterpillar being sandwiched between the silken layer and the skin of the leaf. This takes place in June; the larva lies in a more or less quiescent state until the following March, when it changes into a pupa, and the perfect insect emerges in May.

Grasshoppers (*Locusta*), locusts (*Acridium*), and crickets (*Gryllus*) make holes in the ground in which to deposit their eggs, while the mole-cricket (*Gryllotalpa vulgaris*) burrows a tunnel and a chamber in which to deposit its eggs.

The "white ants" or Termites of Tropical countries build enormous dwellings of sand and earth, sometimes so much as from 10 to 15 ft. high.

The cocoons made by the larvae of the Ailanthus silk moths (*Attacus cynthia*) of China, are formed of silk enclosed in a folded leaf, as are also those of the polyphemus silk moth (*Teia polyphemus*), of North America, and the tussore silk moth (*Attacus mylitta*), of India. The caterpillar of the great emperor moth (*Saturnia pyri*) also makes a neat silk cocoon, notwithstanding the fact that the larva are destitute of eyes.

In the illustrations:—Fig. 1 represents a section of the dwelling of the seal. 2, nest of oven-bird; 3, nest of welcome swallow; 4, nest of mud-hatch; 5, nest of flamingo; 6 and 7, nests of osceola swift; 8, end view, and 9, side view of "run" of bower bird; 10, section of "run" of garden bower bird; 11, nest of San Geronimo swift; 12, nests of sun birds; 13, nests of Baltimore oriole; 14, nests of Baya weaver bird; 15, nest of Mahali weaver bird; 16, nest of crowned titmouse; 17, nest of tailor bird; 18, nest of Bulger's fantail humming-bird; 19, nest of penduline titmouse; 20, cocoon of larva of Tussock silk moth; 21, nest of trap-door

spider removed from ground; 22, abode of *Stephanoceros eichornii*; 23, home of *Melicerta rufens*; 24, nest of harvest mouse; 25, section of nest of tree wasp, showing combs and cells.

## ROYAL INSTITUTE OF BRITISH ARCHITECTS.

### PRESENTATION OF THE ROYAL GOLD MEDAL.

The closing meeting of the present session of the Royal Institute of British Architects was held on Monday afternoon, at 9, Conduit Street, W., when for the first time since the Royal Gold Medal was instituted by Queen Victoria, sixty-eight years ago, it was presented to a Scottish architect, Sir Robert Rowand Anderson, LL.D., F.R.S.E., of Edinburgh, whose principal work is the McEwan Hall of Edinburgh University. A large collection of drawings and photographs illustrating Sir Rowand's creations were hung upon the walls and on screens. Unfortunately Sir Rowand Anderson, who is in his eighty-third year, was incapacitated by illness from journeying to London, and the medal was received on his behalf by the Lord Provost of Edinburgh, Sir Robert Inches. The President of the Royal Institute, Mr. Ernest Newton, A.R.A., occupied the chair, and among the numerous company present were:—Sir Ernest George, A.R.A., Mr. Basil Champneys, and Mr. Thomas E. Colcutt, royal gold medalists of former years; Sir J. J. Burnet, R.S.A., Sir George Frampton, R.A., Sir Robert K. Inches, Sir Henry Tanner, Messrs J. A. Gatch, J. Douglass Mathews, E. A. Rickards, J. W. Simpson, H. H. Statham, Leonard Stokes, William Woodward, etc. The President read a letter from Sir Aston Webb, R.A., regretting his inability to be present to do honour to one who had gained universal admiration for his work as an architect, and his work in the cause of architectural education. Mr. E. Guy Dawber, Hon. Secretary, announced with regret the deaths of Lord Kitchener, their distinguished Hon. Associate, Sir Hay Frederick Donaldson also an eminent Hon. Associate, and Messrs. Edward Thornton and Ernest Willmott, Fellows. The President announced that Mr. Charles Ernest Lawrence, of Newport, Mon., had been reinstated by the Council as a Licentiate.

In making the formal presentation to Sir Robert Inches, on behalf of Sir Rowand Anderson, the President remarked:—My Lord Provost, ladies and gentlemen.—We are assembled here this afternoon to do honour to a great Scottish architect, Sir Rowand Anderson. I regret very much, and I am sure that you regret also, the absence of Sir Rowand on account of illness, and that you will wish those who represent him on this occasion to convey to him our sympathy and to tell him that, although his absence has given us the pleasure of welcoming Sir Robert Inches, the Lord Provost of Edinburgh, who has so kindly honoured us by coming expressly to receive the medal on Sir Rowand's behalf, and Mr. Lorne Campbell, who will read Sir Rowand's address, we were looking forward to the occasion as an opportunity of testifying personally to him our admiration for his work as an architect, and our appreciation of the great services he has rendered to architecture. This is the second occasion on which I have had the honour of presenting the Royal Gold Medal, and each occasion has had its special point of interest. Last year the recipient was Mr. Frank Darling, who was the first Canadian architect to receive this mark of the esteem of the Royal Institute of British Architects. This year the medal in being conferred on Sir Rowand Anderson goes for the first time across the border. Sir Rowand Anderson has had such a long and distinguished career that it is difficult to condense even introductory remarks into a becoming length. He was born in the year 1834, and I have obtained from him, in his own words, the following interesting sketch of his career:—

"Like some others, I was not brought up to architecture in the recognised way—that is, by means of an apprenticeship—but was articulated to a lawyer in the hope that I would follow a legal career. After four years spent

in what to me was most uncongenial work my parents recognised the inevitable and allowed me to follow the profession of architecture. I became a pupil of a teacher of architectural drawing and entered also the architectural section of the School of the Board of Manufactures, the precursor of most of the schools of design in this country. I afterwards left for a year's residence in Italy and France, where I spent my time in measuring and drawing work of the Renaissance and Mediaeval periods. On returning to Edinburgh I spent some time in several offices, took part in some competitions, gained some and lost others. In 1875, when the new schools were being built under the Education Department, I was invited to enter a limited competition of six. I came out first, and the carrying out of three of the largest schools was entrusted to me. In 1878 the University of Edinburgh launched a large new scheme for housing all their medical classes in one building, and invited six architects to submit plans for the same. I was one of them. Previous to preparing my plans I made an extensive tour in Germany, France, and Holland to examine and make myself acquainted with the new buildings that had been erected at the centres of education there, so that my design might be applied to the new methods of teaching. My plan, which was based entirely on the use to be made of these buildings, carried the day, and I was appointed architect. Later on I was asked to design and carry out the great Graduation Hall, known as the McEwan Hall, and other buildings for the University, and also for the University College at Dundee. As architect to the Board of Manufactures I designed and carried out the Scottish National Portrait Gallery and National Museum of Antiquities, Edinburgh, also the restoration of the cathedral at Dunblane, which at that time was under their jurisdiction. These were followed by a number of public and private buildings."

Among Sir Rowand's works, continued the President, the following demand particular mention to-day:—Public Buildings.—New Medical School, Edinburgh University. He won this in competition and the buildings have cost in all nearly £1,000,000. (Included in this group is the well-known McEwan Hall.) The Central Station Hotel, Glasgow; the Scottish Conservative Club, Edinburgh; the National Portrait Gallery, Edinburgh; the Pollokshaws Town Hall, Churches.—The Catholic Apostolic Church, Edinburgh; the Govan Parish Church; St. Paul's Church, Greenock; Glencorse Parish Church; Inchinnan Parish Church; St. James's Episcopal Church, Inverleith; the Episcopal Church, Stirling; the Episcopal Church, Colinton; the Episcopal Church of St. Andrew's, Kelso; the Episcopal Church, Forfar; the Episcopal Church of St. Augustine, Dumbarton; the Episcopal Cathedral Church of St. Andrews; All Saints' Church, Parsonage and Schools, Edinburgh; St. Margaret's Roman Catholic Church, Dunfermline. Public Memorials.—The Buchanan Memorial, Edinburgh; the Montrose Memorial, Edinburgh; the Inglis Memorial, Edinburgh. Domestic Work.—Mount Stuart House, for the Marquis of Bute; a mansion at Glencoe, for Lord Mountstephen. Restorations.—He has carried out important restorations at Dunblane Cathedral; King's College Chapel, Aberdeen; Bothwell Collegiate Church, and at Jedburgh and Kelso. Schools.—In the early part of his career he carried out several large schools for the Edinburgh School Board. One might have thought that the carrying out of such a formidable list of important works would have been sufficient to absorb the energies of any ordinary man, but with all these heavy responsibilities he nevertheless found time to devote to the improvement of architectural education in Scotland. The Edinburgh School of Applied Art, now merged in the Architectural Section of the Edinburgh College of Art, owes more to him than to any other man, and many of the schools since started throughout the country are based on the principles laid down by him. He presented a valuable collection of architectural books and casts to the school, as well as a large number of measured drawings of Scottish ecclesiastical and mediæval build-



ings, prepared at his own cost. These drawings now form the greater part of the collection of the National Art Survey of Scotland; they are of great educational value and a lasting record of buildings many of which have already disappeared. I wish I could speak from a personal knowledge of Sir Rowand's actual buildings, but such is my incurable distaste for travel and adventure that I blush to have to confess that it is more than forty years since I made my first and only visit to what was then rather a far country. I will, therefore, avail myself of the appreciation of one who has been more fortunate in this respect than I have and who gives as the characteristic quality of his work its evident integrity, each building being thought out for its special purpose with a simplicity and directness of conception which dominates the whole design, the beauty of any particular motif or the careful study of its detail never being allowed undue prominence, each work being eloquent of the conscientious study of the requirements and purposes of the building and of his knowledge of and sympathy with the various crafts employed. It is not too much to say that his work and teaching have not only influenced large numbers of architects now in practice, but that many of the building firms in Scotland owe their capacity for fine craftsmanship and selection of material to his work and guidance. As a proof that this high view of Sir Rowand's attainments is shared by others outside Great Britain, it is only necessary to mention that he has been awarded medals in Paris, Munich, and Chicago. Our own country, true to her traditions, is the last instead of the first to mark the appreciation which it has long felt for one of Scotland's most eminent architects. My Lord Provost, I now have the pleasure of presenting this—His Majesty the King's Gold Medal for Architecture—to you as representing Sir Rowand Anderson. I should like you to tell him that it was awarded to him by the unanimous vote of the Council and of the members of the Royal Institute of British Architects, and that we are proud to have his name on the roll of those who have been honoured by this distinction.

The President, amid hearty applause, formally presented the medal to Sir Robert Inches, who simply bowed in acknowledgment.

Mr. A. Lorne Campbell, F.R.I.B.A., President of the Edinburgh Architectural Association, read a report from Sir Rowand Anderson, who observed that although he had been selected to be the first Scottish recipient of the medal, many architects from across the Border had won fame and distinction in England, including Sir William Bruce, of Kinross; James Gibbs, of Aberdeen; Colin Campbell, of Glasgow, the Milne family, the three brothers Adam, Richard Norman Shaw, and John McKean Brydon. Sir Rowand continued:—"I began to take an interest in architectural education in 1892. South Kensington up to that time had the entire control of art education, but the education they gave never seemed to produce any result beneficial to the architectural student. The system of payment by results poisoned the whole thing. The hopelessness of expecting anything to come out of this system of teaching as regards architecture culminated in 1892. A number of architects and others, with the aid of the Board of Manufactures, then combined to start a school entirely free from the baneful influence of South Kensington. But the scheme was nearly wrecked by the difficulty of getting a director of sufficient standing and requirements for such a salary as we could afford. So, to prevent the collapse of this promising movement, I was asked, and undertook, to act as honorary director. With the assistance of one or two paid teachers a start was made. From the very first the scheme caught on. It gradually became recognised by the student as the best means of getting an education to supplement what he was acquiring as a pupil or apprentice in a private office. Knowing the benefit I derived from sketching and drawing, I thought we could not do better than make the study of old work the basis of our teaching. Another important feature in our tuition was the organising of a scheme for obtaining accurate records of

buildings erected previous to the eighteenth century. This was called a National Art Survey. It was a very ambitious scheme, but it worked out all right. This has been going on since 1894, but has been stopped for the last two years owing to the war. There are now something like 2,000 sheets, forming the finest collection in this country. It contains, in addition to the surveys of the buildings, a large collection of drawings and details of early plaster work, wall panellings, fireplaces, and a most interesting collection of old furniture to be found in buildings still inhabited. The work produced was of a very high standard of excellence, and on leaving school the students have always been greatly sought after as assistants. I have always contended that the degree of beauty we see in our buildings and the satisfaction we derive from them depend largely on their fitness and the more or less successful expression of the purposes that call them into existence. Take the Royal High School and the Surgeons' Hall in Edinburgh, both of which belong to the period of the Greek revival. Looked at as abstract pieces of design, they are of the highest order, but the façades of these buildings are not the product of the buildings they are attached to. They are mere screens to mask what is behind them, and that might have been anything other than what is actually there. Again, if you take the plans of the old Scottish castles or mansions of the sixteenth and seventeenth centuries, you can read them like a book from the foundations to the chimney-tops. You can distinguish the original tower that the family once lived in and held its own against all comers. As time rolled on and it was no longer necessary to provide for defence, large additions were made, but everything was done for comfort, as understood in those days, the whole group becoming wonderfully picturesque; but it was built from time to time to suit the necessities of the day and the means of the family, and hence its resulting picturesqueness. Contrast with this the mansions erected in imitation of the old ones, and try to read them from the inside to the outside or the reverse. You cannot do so, as the one contradicts the other. The whole thing is a modern house, masquerading as a castle of a territorial baron. The aim of the teaching in the school was to counteract this sort of thing by teaching the students to look at buildings with an analytical eye and to dissect them as a medical student does his anatomy, and to realise the ideas and purposes that call the buildings into existence. The seed sown by this school and others which have wisely adopted our system of teaching was bearing good fruit before the outbreak of this terrible and unjustifiable war, and there were signs everywhere in Scotland that we had begun to develop architecture, especially in domestic work, on right lines, with a distinct national bias."

Sir John Burnet, in moving a vote of thanks to the Lord Provost, referred to the great educational work which Sir Rowand so successfully carried on during one and twenty years without fee or reward.

Mr. J. A. Gatch seconded the motion. To be the Lord Provost of a city so full of delight and beauty, so rich in historical associations, and so exquisitely situated and so go-ahead as was Edinburgh, was a very high privilege and honour, and this noble heritage could not be in better keeping than in those of Sir Robert Inches. He feared, however, that a Lord Provost, having regard for the commercial prosperity of his city, would be tempted to look with a lenient eye on the wreaths of smoke from his increasing chimneys that tended to obscure the halo of mediæval romance.

Sir Robert Inches briefly replied, observing that he esteemed it a great honour to represent his friend Sir Rowand Anderson, who had done much for Edinburgh, and, in particular, had designed and presented to the town council the four beautiful balbricks which were borne in procession before the Lord Provost.

The collection of photographs and drawings hung on the walls of the assembly room, in illustration of Sir Rowand Anderson's buildings, included Dunblane Cathedral,

as restored; South Morningside Church; Archer's Hall; Govan Parish Church; the Town Hall at Pollokshields; the estate offices erected for Sir Michael Shaw Stewart, Bart., at Greenock; the pulpit in Dunfermline Abbey Church; St. Cuthbert's Episcopal Church, Collington; the Marquis of Montrose tomb, St. Giles', Edinburgh; Mount Stewart, Bute, for the Marquis of Bute, a mansion of outstanding merit, in the mediæval manner, views being shown of the cortile, the private chapel and its bronze altar, in detail, as well as general views of the house itself, which is very handsome and extensive. Hanging near is the photograph of the memorial to Lord Justice General Inglis, put up in St. Giles', Edinburgh; the Music Hall and Assembly Rooms, Edinburgh; and the memorial statue of the Duke of Buccleuch, in Parliament Square; the Sir William Pearce Memorial Institute, at Govan; Pollok House, Pollokshaws, is seen by a view of the additions made by Sir Rowand, with new terraces and formal gardens, of great extent; the Scottish Conservative Club, at Edinburgh; the Great Central Station, Glasgow; the memorial to the late Earl of Wharnccliffe, in Newtyle Church, Forfarshire. Among the other pictures is an interior of Rix House, Stirling; also domestic work at Thirlestane and Allermuir, Midlothian; the lamp standard in front of the McEwan Graduation Hall, Edinburgh, and Dean Ramsay's memorial cross, of Celtic character, St. John's Church. The Scottish National Portrait Gallery and Museum of Antiquities, Edinburgh, is illustrated by a fine pen-and-ink perspective and a large photograph of the main entrance, in detail. The new Medical Schools and Anatomical Museum, also the grand cupola which Sir Rowand Anderson erected some years ago for the University of Edinburgh, to complete the work of the Brothers Adam, and lately illustrated in our pages. The most important work perhaps shown from Edinburgh is the famous McEwan Hall, with its handsome and bold exterior, with the very elaborate auditorium, rich in mural figure paintings, and the splendid organ. The building is shown by six large photographs.

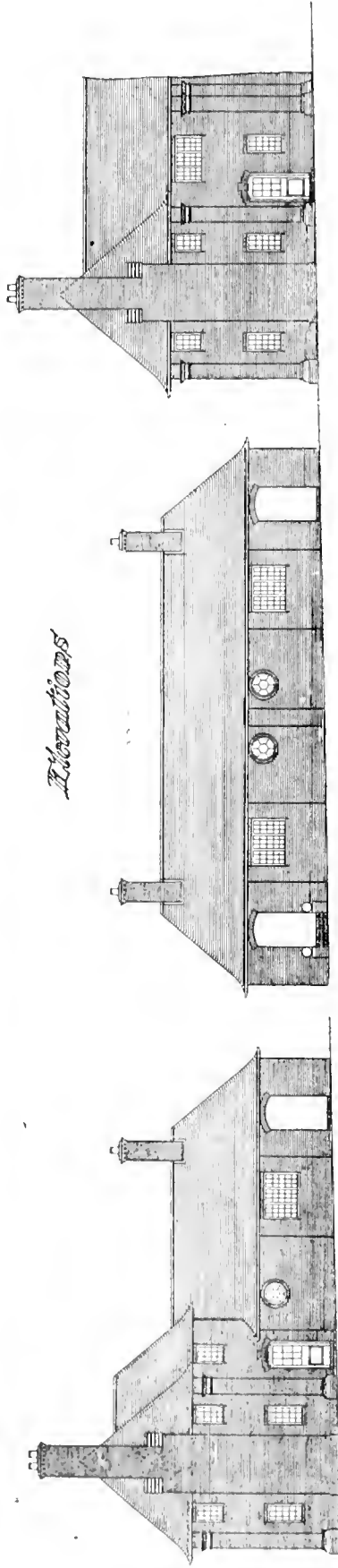
#### OBITUARY.

We regret to announce the sudden death of Mr. Edward Thornton, F.R.I.B.A., which took place at Calcutta on the 12th inst., in his forty-seventh year. Mr. Thornton was the third son of Surgeon-General Sir James and Lady Thornton, and was associated with Mr. A. H. Ryan Tenison, F.R.I.B.A., after serving his articles to Mr. Rowland Plumble, F.R.I.B.A., Westminster. He left to take up his present position in India in 1898, and has since then been responsible for some of the most important buildings in Calcutta and other parts of India. He devised the decorations carried out in Calcutta at the time of the Imperial Durbar in Delhi. He joined the Royal Institute of British Architects as an Associate in 1892, becoming a Fellow twelve years later. We shall hope to give our readers illustrations of some of his work, as well as a short account of his professional life, a little later on.

Mr. Ernest Willmott, F.R.I.B.A., of 1, Raymond's Buildings, Gray's Inn, died on Monday last week, after a lingering and painful illness, at his residence, Bramleys, Little Kingsmill, near Great Missenden, aged 45 years. Mr. Willmott, who was of a retiring disposition, carried out some excellent domestic work, sometimes in conjunction with other architects. He was elected a Fellow of the Royal Institute of British Architects in 1905. He leaves a widow and three children.

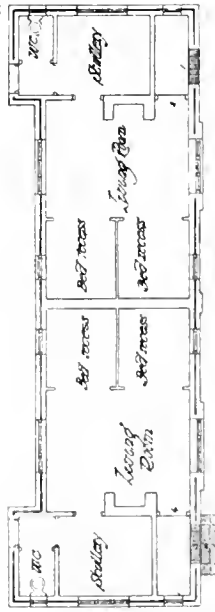
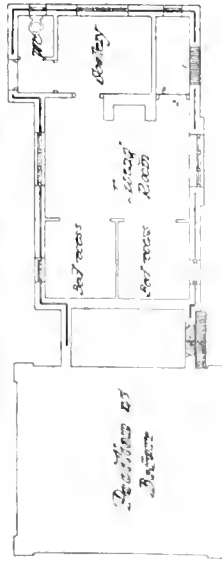
We regret to record the death of Mr. John Lewis, of "Redroofs," 76, Underhill Road, East Dulwich, on Thursday last, the 15th inst., after an operation for appendicitis. Deceased, who was sixty-three, had been for thirty-eight years in the service of Messrs. Blandell, Spence, and Co., Limited, of London and Hull, and was universally respected by a large circle of friends both in trade and private life. Mr. Lewis leaves a widow and three sons, two of whom are serving in R.M. Forces. The funeral took place on Monday at Forest Hill Cemetery.

*Elevations*

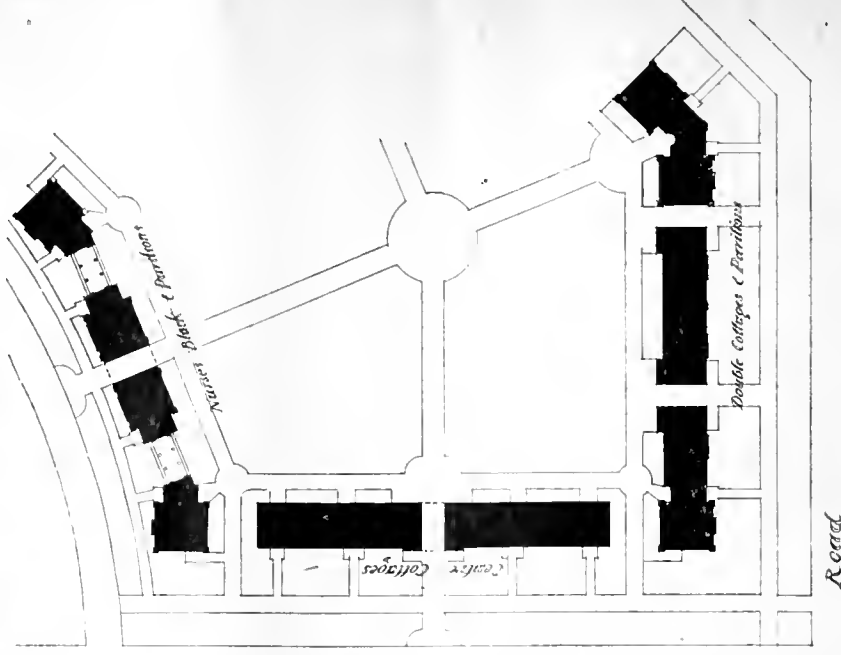
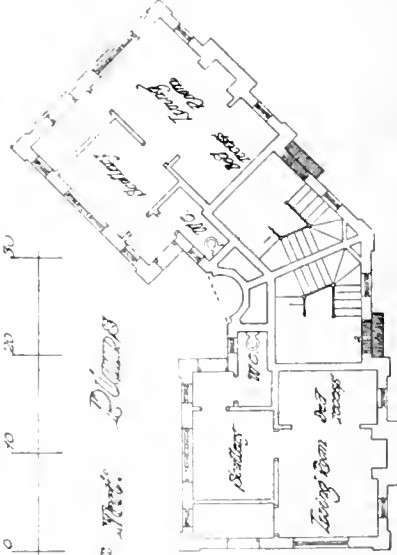


*Whiteley Homes  
Double Cottages &  
Pavilions  
Oranger Road*

*Reginald Blomfield, R.A.  
Frampton  
New Court Temple H.A.*



*Scale of Feet*



*Road*

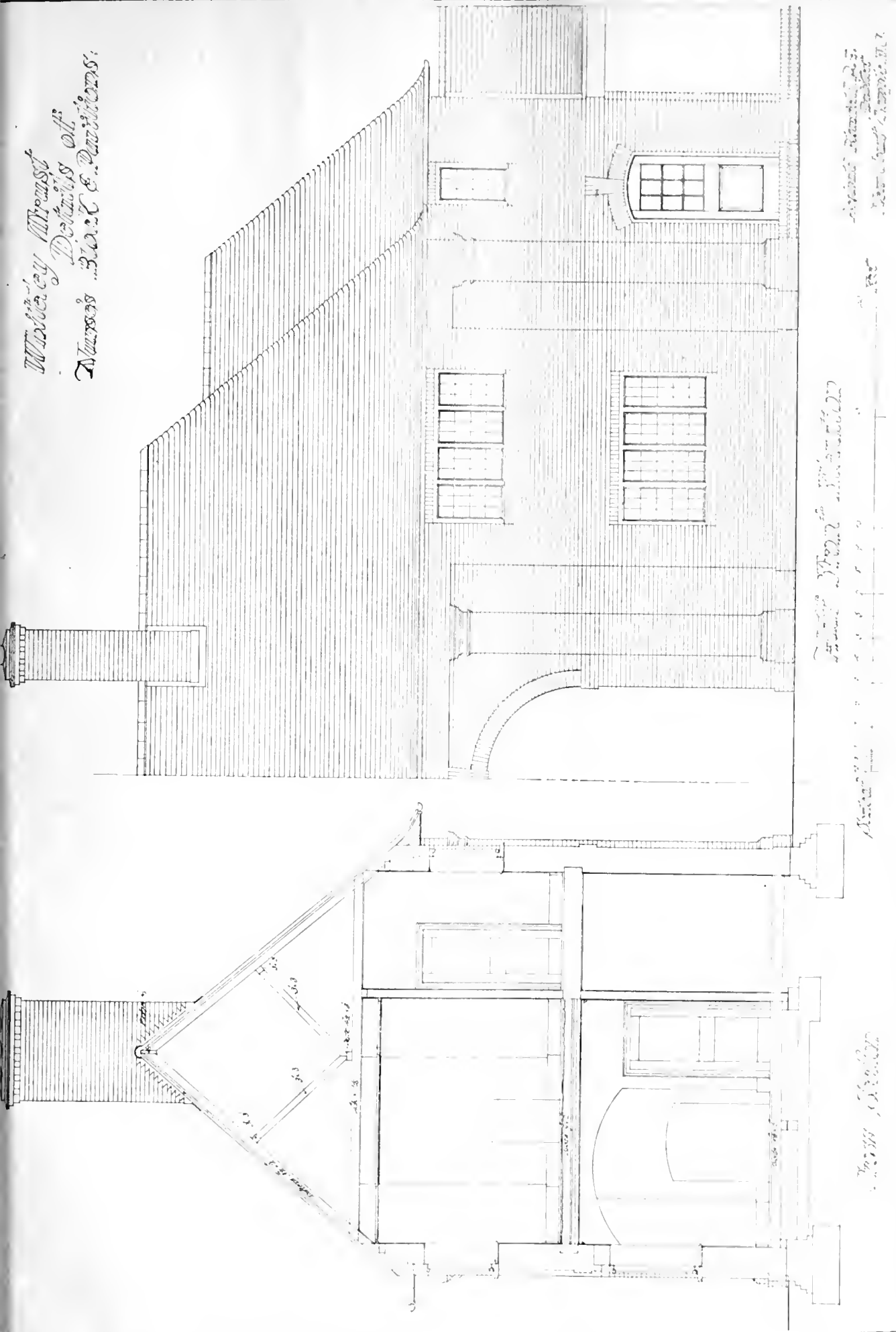
*Oranger*

THE WHITELEY HOMES, WHITELEY PARK, BURHILL, NEAR WEYBRIDGE, SURREY.  
Double Cottages and Pavilions, with key block plan of the group designed by Mr. REGINALD BLOMFIELD, R.A., Architect.





Whiteley Weybridge  
 Nurses' Block & Pavilions

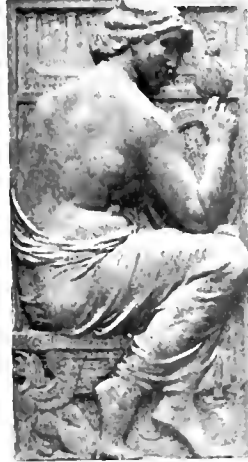


THE WHITELEY HOMES, WHITELEY PARK, BURHILL, NEAR WEYBRIDGE, SURREY: DETAILS OF CENTRE COTTAGES.  
 MAIN ROAD, AND OF NURSES' BLOCK AND PAVILIONS.—MR. REGINALD BLOMFIELD, R.A., ARCHT.









*Justice*

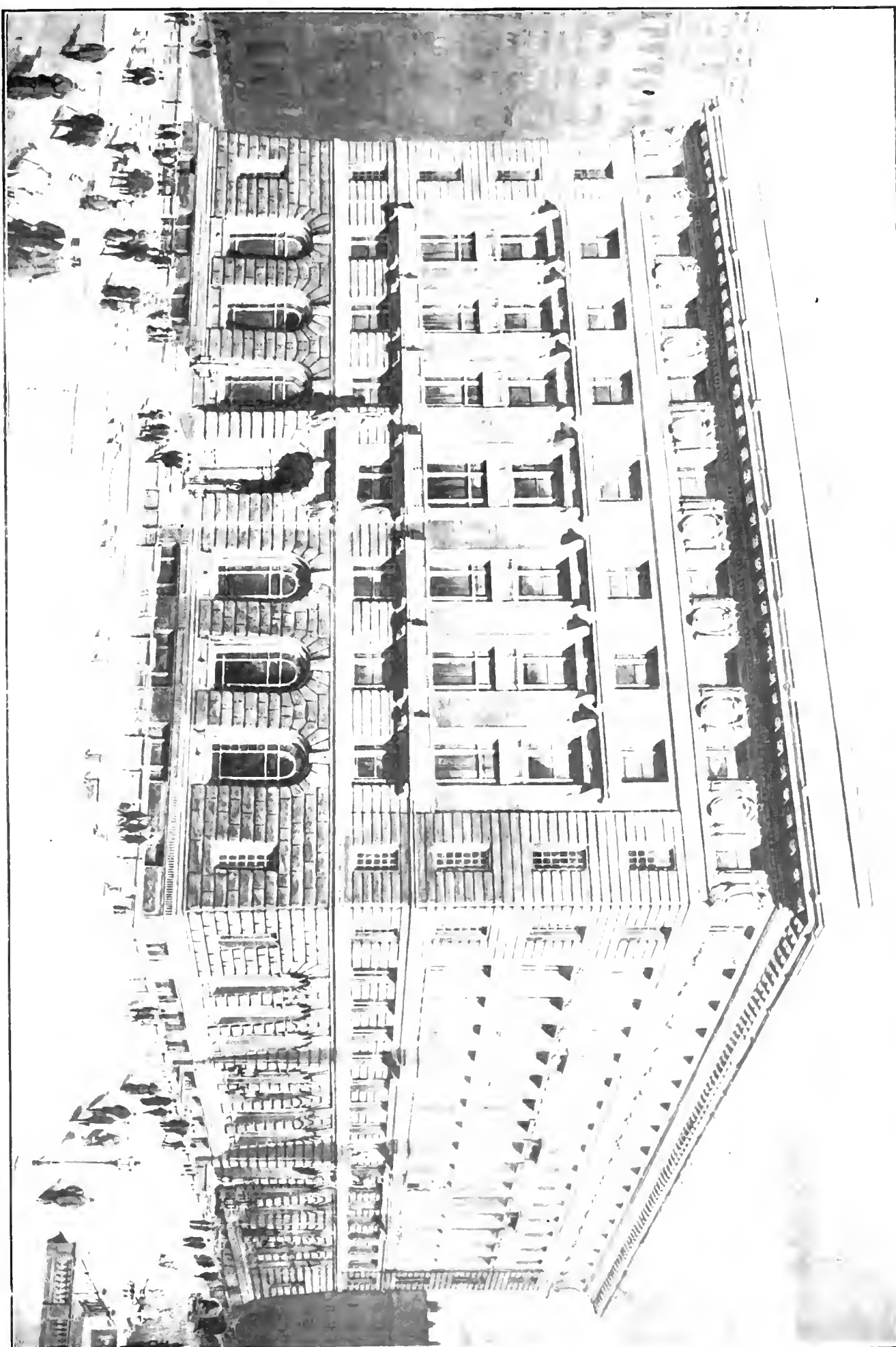
*Intelligence*

*Peace*

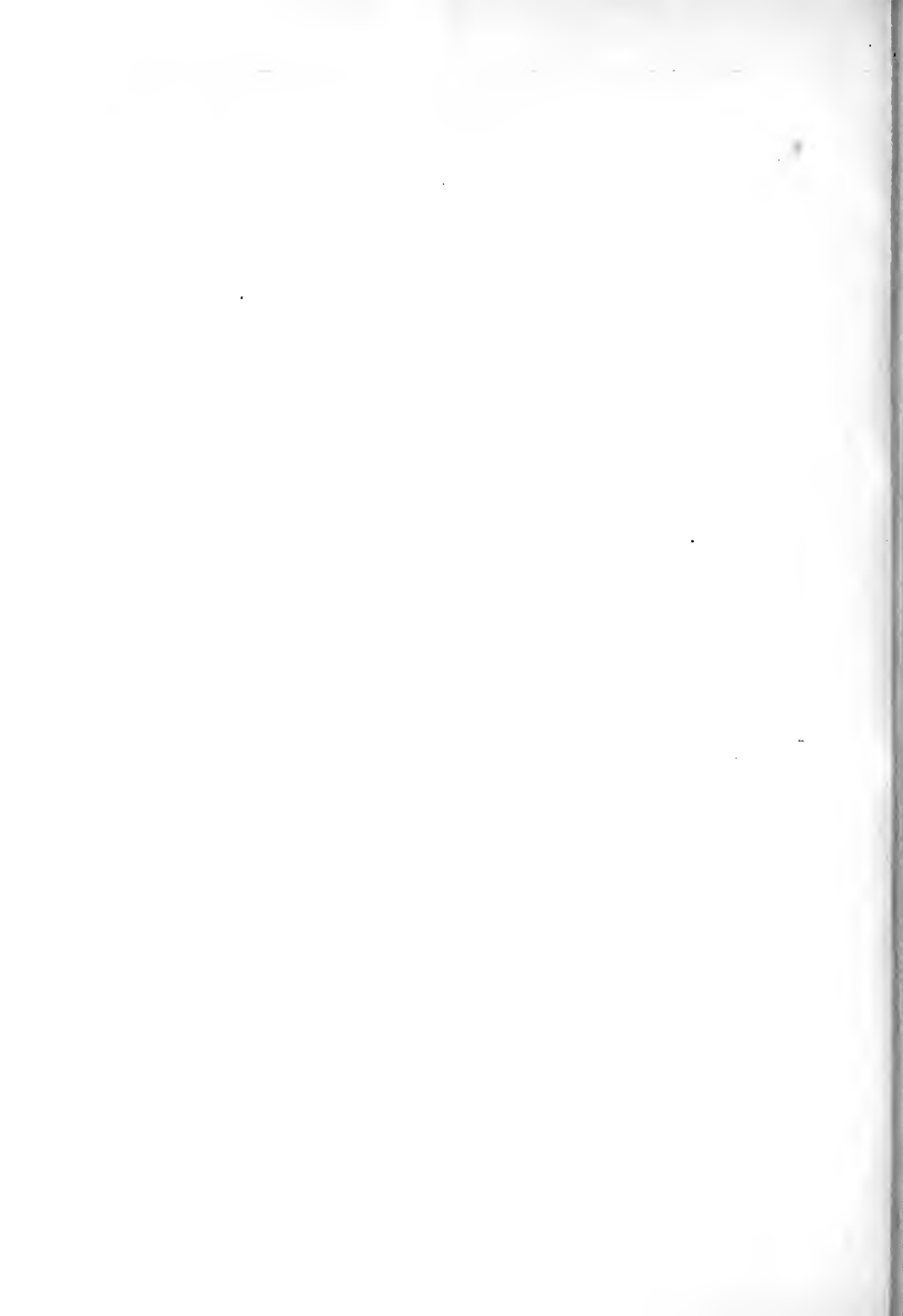


PAVILION OF THE ROYAL INSTITUTE OF ARCHITECTURE, LONDON. THE ALGEMENT BOARD OF  
CONVENTIONS, ADMIRALTY, AND THE ROYAL INSTITUTE OF ARCHITECTURE.

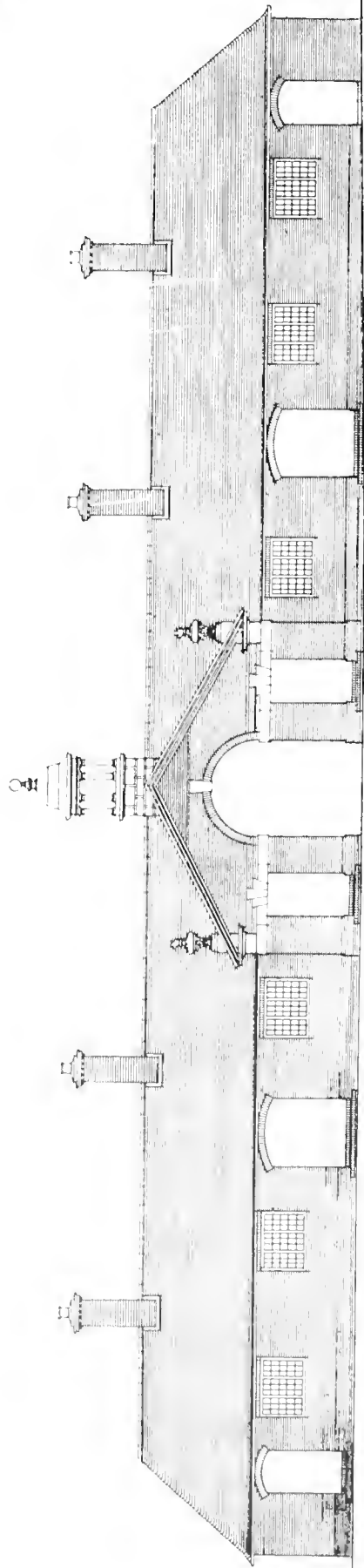
THE BUILDING NEWS, JUNE 21, 1916.



THE GRAND NEW OFFICES OF THE BUILDING NEWS, JUNE 21, 1916.  
Messrs. Mewes and Davis, Joint Architects.



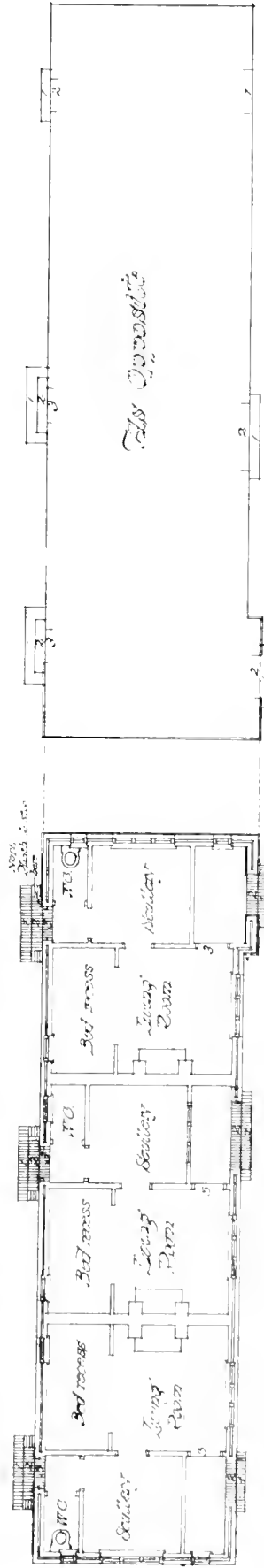




(A.2.2)  $f_{\text{PM}(U_1)} = \text{PM}(U_1)$ .

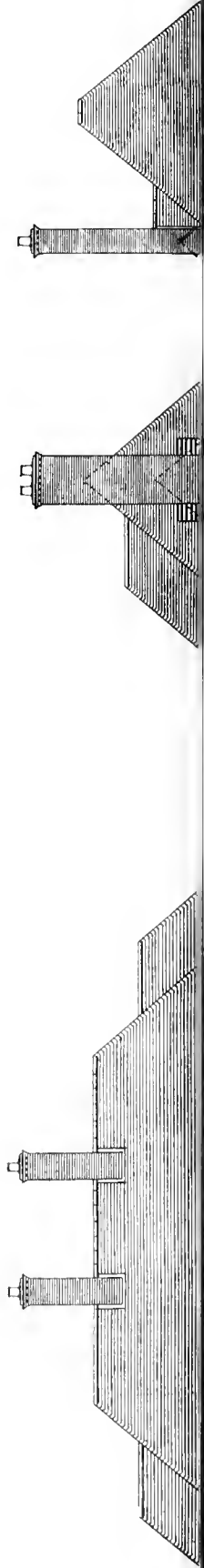
Charles F. Johnson

Worcester, 12th June 1840  
 Dear Sir, I am very much obliged to you for the  
 Certificate of the Marriage of Charles B. Smith

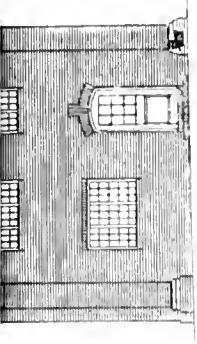
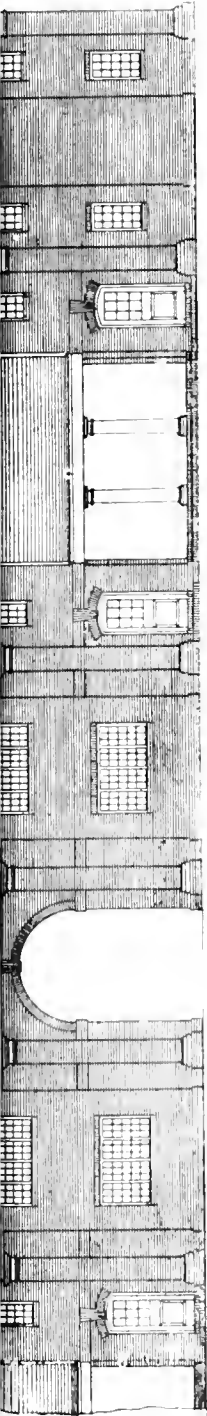


St. John's N.Y.

*Flora*

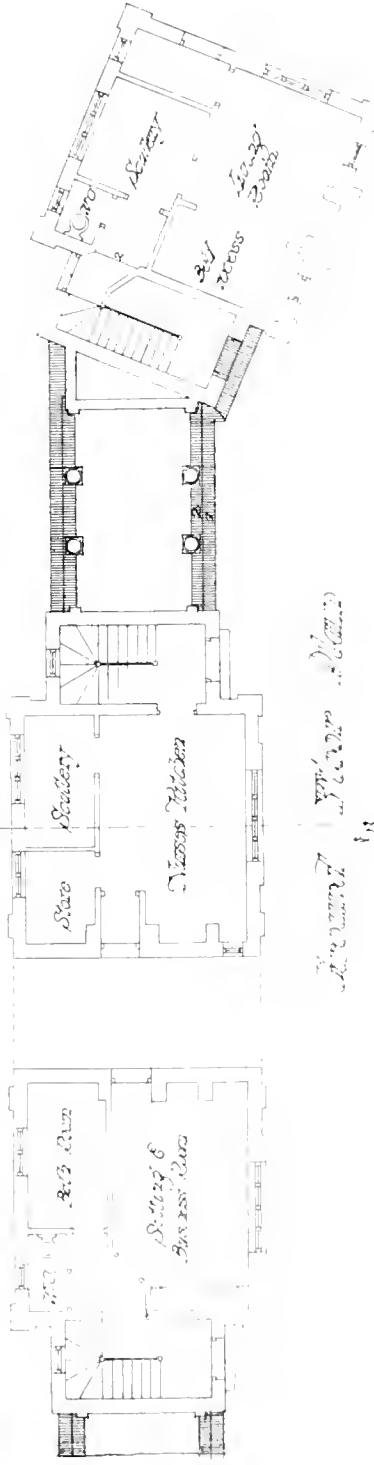




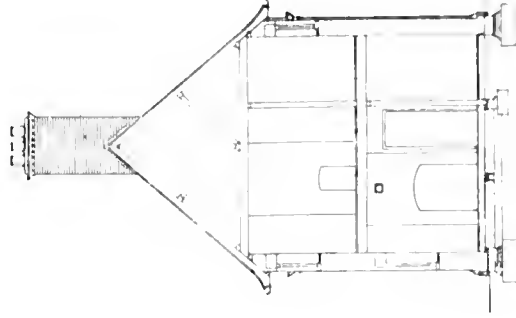


Nurses' Block

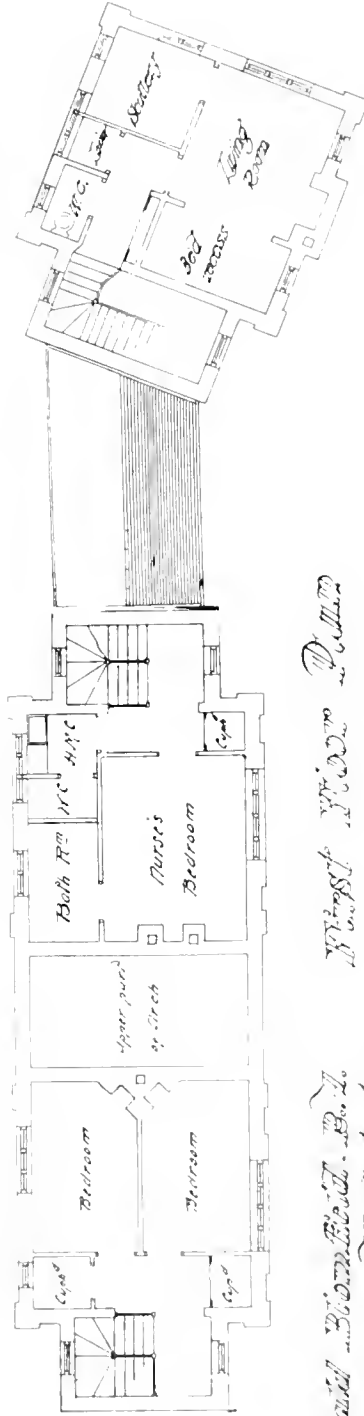
Nurses' Block



E. Pavilions



South E.B.



W. Pavilions

Reginald B. B. B.

North White Tower



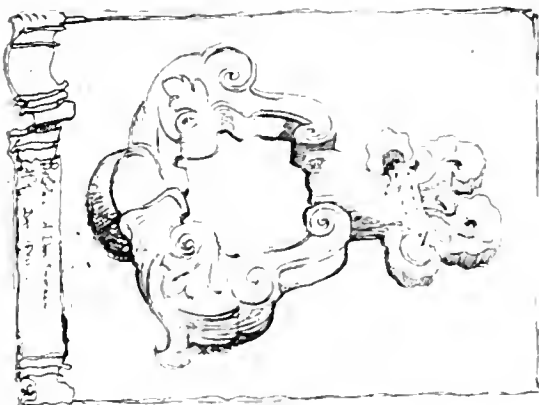
THE WHITELEY HOMES, WHITELEY PARK, BURHILL, NEAR WEYBRIDGE, SURREY: THE CENTRAL COTTAGES, MAIN ROAD, AND NURSES' BLOCK AND PAVILIONS. MR. REGINALD BLOWFIELD, R.A., ARCHT.



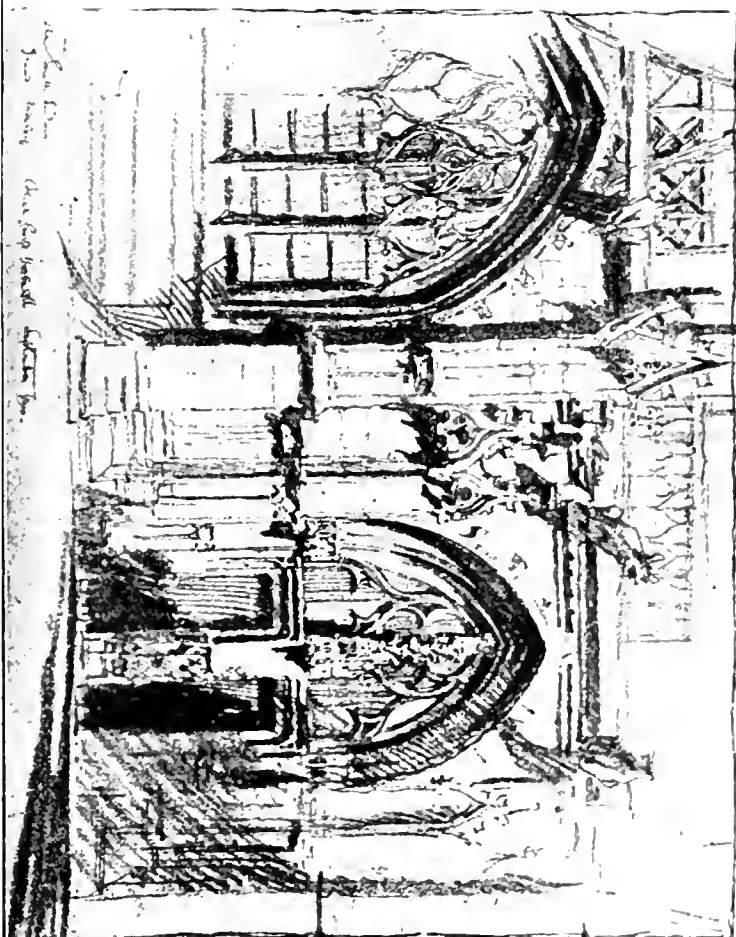
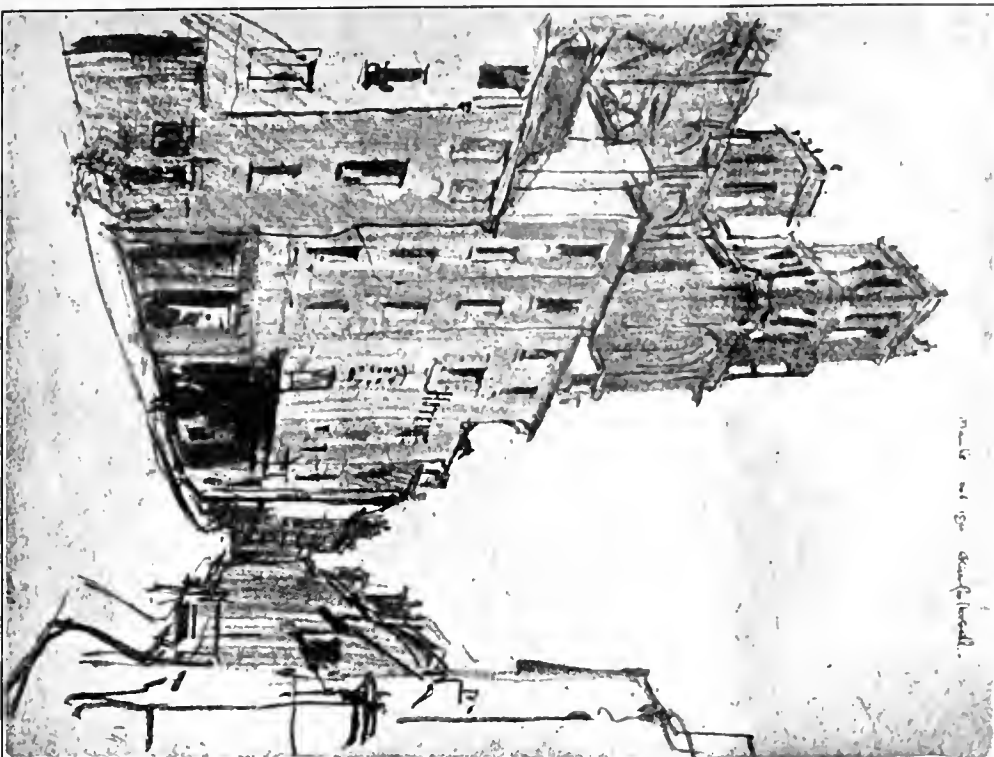


Sketches by Mr. G. Horsnell.

SKETCHES IN FLORENCE  
NANTES & LE GRAND  
ANDREY BY ALICE G.  
HORSNELL.



PIERCE, IN FLORENCE  
SILVER EVANGELISTIC  
BEASTS THE DARGELLO  
FLORENCE



## NEW ARTERIAL ROADS FOR THE PORT OF LONDON.

The fifth meeting for the present session of the London Society was held on Monday afternoon in the hall of the Royal Society of Arts, John Street, Adelphi, W.C., Lord Devonport, Chairman of the Port of London Authority, presiding. A paper, with numerous lantern illustrations, on "The Port of London: Past, Present and Future," was read by Mr. Arthur Crow, F.R.I.B.A., district surveyor for Finsbury.

After describing the lower river, its docks and wharves, the author dealt with the growth of commerce and the development of the port. Passing on to consider the gradual extension of the dock system, Mr. Crow showed how this had resulted from the increase in length, breadth, and need for greater draught of the leviathans of the deep. The immense industries dependent on the port were detailed, and the need for more speedy transit of merchandise. The traffic congestion in the central area was attributable to the want of forethought in the past.

In conclusion, the lecturer dealt with the need for a development plan, as follows:—

Is it wise, then, that the growth of the metropolis should be allowed to proceed indefinitely in the present haphazard way? Every year intensifies the mischief, every year renders it more impossible to carry out improvement schemes much needed in the interests of our trade and commerce. To anyone studying the traffic problem of London, it must be apparent that if the evils of the past are to be avoided, it becomes increasingly essential that provision should be made for main arterial roads. The free and rapid transit of merchandise from docks to manufactory, from manufactory to railway or back again to the docks, is a matter of primary importance in regard to our commercial supremacy. The allocation of specific areas for manufacturing premises in close proximity to these main lines of communication is also desirable wherever possible, as in the uncovered areas in South Essex. The gradual extension of the dock system in an eastward direction along the north bank of the river makes the present time opportune for formulating a scheme of this kind. The advent of motor traction makes it possible to use the main roads to a very much greater extent than formerly for the conveyance of heavy goods. Journeys of twenty and thirty miles are now made by motor lorries, with trailers attached, for the purpose of bringing vegetables and other goods to the London markets. With an adequate system of arterial roads of sufficient width to allow of the separation of fast and slow traffic, and provision of space for light railways or electric cars running either singly or connected, there is no reason why much of the warehouse and factory work could not be transferred from the central area into the open country. To some extent this transference is already in progress. Letchworth, Sudbury, Enfield, Tottenham, Barking, Dagenham, and other places are developing as industrial centres, to the immense advantage of the operatives and to the relief of the metropolis. The adequacy of the roads, however, must be beyond question both for the present and for the future. When once the road has become lined with important buildings, widening becomes so expensive as to render improvements almost impossible. The more deeply this problem of land development is considered in relation to the best interests of the port, the more convincing becomes the need for a considered scheme. Sir Herbert Jekyll, the late chief of the London Traffic Branch of the Board of Trade, in his report for 1910, expresses the following views:—"It would seem to be necessary that the task of dealing with the arterial roads within so large and important an area as that of Greater London should be left to a central authority in order that due regard should be paid to the needs of the metropolitan community as a whole. Supplementary legislation would seem to be required to empower the central authority to schedule existing roads and to lay down building lines on them, and also to schedule specific areas required for the construction of new roads as may be approved. The powers should be such that, when exercised,

building within the prescribed limits should at once cease, while existing buildings should be purchasable by agreement, or, in the last resort, by compulsion." Mr. W. E. Riley, F.R.I.B.A., the superintending architect of the London County Council, in the appendix to the report, states that "The area within the county available for development is steadily diminishing, and it is of the utmost importance that the outlying parts of the county should be laid out with proper regard to general convenience and the necessities of traffic. The need for a comprehensive plan remains as urgent as hitherto." In the report of the Royal Commission on London Traffic (1905), the Commissioners state that "The magnitude of the population of London, and the extent of the area over which that population is spread, make the problem of locomotion specially important for London; and, if the standard of movement cannot be raised to the level attained elsewhere, London must fall behind in competition with other cities, and the life and growth of the metropolis will be slowly (but not the less surely) strangled by the choking of the great arteries of traffic." The Advisory Board of Engineers appointed by the Royal Commission recommend that "Street improvements should be undertaken in conformity with a carefully considered plan, designed to meet the requirements of through traffic, which may be carried out over a long series of years; we agree in this conclusion also."

### ESSENTIAL POINTS IN A DEVELOPMENT PLAN.

Before any attempt can be made to formulate such a scheme as that contemplated, the essentials of the plan must be clearly defined. Among such appear to be the following:—

1. Ample and unrestricted means of inter-communication between the docks, the railways, and the manufactories.
2. Rapid means of transit between the central area and all the docks, both for passengers and goods.
3. Rapid means of transit between the industrial housing areas and the dock and manufacturing areas, including tracks for light railways separated from, but in conjunction with, the ordinary road traffic.
4. The allocation of land for specific purposes—viz., for docks and wharves, for warehouses and manufactories, for industrial housing, for residential and general purposes, for allotments and market gardens, for agricultural belts, parks, golf courses, playing fields, and other recreative purposes.
5. The traffic facilities and the general scheme must be capable of extension, *pari passu*, with the extension of the dock system and the growth of the port.

### AREA OF METROPOLIS IN 1975.

The development of London ought to be carried out in accordance with these principles. Assuming the population of London to have increased to twenty millions in the year 1975 (i.e., about two generations hence), the extent of land required in order to ensure the healthy housing of the people would be 1,040 square miles, allowing thirty persons to the acre over the whole area, including open spaces, streets, manufactories, and all non-residential areas, or from forty to sixty persons to the acre in the housing and residential districts. An area of this extent would be contained within a circle having a radius of eighteen miles. The additional arterial roads proposed by the London Traffic Branch of the Board of Trade have been approved, with minor alterations, by the local authorities in conference. These admittedly are designed to meet some of the more urgent needs of the present time. They form but the introduction to a work which must extend from year to year. Among the chief of the roads required for the work of the Port are an improved artery between the Eastern Road, Canning Town, Dagenham, Grays, and Tilbury, with branches to the London and St. Katherine's Docks and the riverside wharves of Wapping, Ratcliff, Poplar, Silvertown, and Woolwich. The need for improvements in the Victoria Dock Road is admitted, and a high-level road has been provisionally agreed. A bypass road from the Beckton Road to the Ripple Road, avoiding East Ham and Barking, has been approved. The reconstruction of the Iron

Bridge over Bow Creek, with improved approaches, is admittedly a work not for postponement but for construction immediately after the war. In connection with this improvement the superfluous loop in the Creek should be removed by a short cut leading directly to the Creek's mouth. The loop in the river with the derelict tongue of land could be formed into a useful extension of the East India Dock; some slight readjustment of land and wharves might be required, as between the Port of London Authority and the Great Eastern Railway, but the substantial advantage accruing to the manufacturers in the Lea Valley would far outweigh the temporary local inconvenience. Other arterial roads, both of a radial and circumferential character, are suggested, bringing the outlying towns into more direct touch with the central area and giving them access to the docks, the riverside wharves and the main lines of our railway system. In order to divert traffic from the central area, a circular railway in outer London is suggested, linking up the North-Western Railway at Watford, the Midland at St. Albans, the Great Northern at Hatfield, and the Great Eastern (Cambridge line) at Broxbourne. Crossing thence to Epping, the existing line from Epping to Ongar would be utilised and a new branch formed connecting Ongar with the Great Eastern (Chelmsford and Southend lines) between Romford and Brentwood. Continuing southward, the existing branch line from Upminster to Grays and Tilbury would be utilised. A connecting link between the North Woolwich line at Canning Town and the Tilbury line at Plaistow would bring the whole of the Victoria and Allert Dock system into direct communication with the great towns of the Midlands and the North, without the necessity of passing through the central area. No less important is the extension of the London Tube railway system along the whole of the riverside area, with stations at each of the docks and intermediate stations for the wharves and manufactories. Beyond the Albert Dock a light railway service might be provided to Dagenham, Grays, and Tilbury. The land abutting on the river and extending northwards to the Ripple Road, formerly the bed of the unbanked river, is suggested as suitable for chemical industries and manufacturing purposes; being below the water level of the river, it is unsuitable for housing purposes, and should be excluded from such use. In developing this area provision should be made for a complete system of railway sidings, the levels of the service roads being arranged to meet this essential requirement of factory areas. The land to the north of the Ripple Road is suggested to be reserved mainly for the purposes of industrial housing. With docks and manufactories extending from East Ham to Tilbury, over an area of some fifteen or twenty square miles, the number of operatives and their families to be housed within two or three miles of the dock and factory area may well approximate to a million persons. The planning of this area should allow of rapid means of conveyance from dwelling to dock or factory either by bus, tram, or light railway. Possibly a joint system might be adopted. In connection with this housing scheme, an attempt might be made to grapple with the problem of the casual labourer. Tentatively an area of land might be set aside for housing this class. A labour bureau in telephonic communication with the dock and wharves would afford information as to the numbers of men required at any stated time, and conveyances would be held in readiness. Allotments and workshops for basket and tool making and other forms of industry would fill in the hours of otherwise enforced idleness. The estate would need to be under the management of a duly constituted housing authority, and a condition of residence would be an undertaking to abide by the decision of the authority as to rotation of labour and other matters.

It is not within our purview to suggest the nature of the authority that should be responsible for the development of London, but in considering that question the work of the Turnpike Trusts during the latter

half of the eighteenth and the early part of the nineteenth centuries should not be overlooked. The consolidation of these trusts under the Metropolis Road Act of 1826 and the appointment of Commissioners under the style of the Metropolis Road Board led to some very useful highway construction, and, but for the advent of the railways some ten years later, that Board might have remained the road authority for Greater London up to the present day. A similar authority with extended powers might meet the needs of Greater London, if not permanently, at least pending the great Act of Unification which sooner or later must be placed upon the Statute Book. Among the new highways constructed at this period were the Camden and Seven Sisters Roads, completing the great artery from Oxford Street to Tottenham, and the New Road from Whips Cross to Epping. This latter road is a work of some considerable engineering importance, and an interesting example of the work of that day. Taken in conjunction with the Lea Bridge Road, it forms a great highway from Clapton to Epping and the Eastern Counties. On holidays it is filled with pleasure seekers bound for Epping Forest. In conclusion, I trust we are in agreement that the problem of the growing congestion in the central area is one of serious and immediate concern. If you concur in the opinion expressed by the Royal Commission of 1905 that unless the standard of movement can be raised the life of the metropolis will be slowly but surely strangled by the choking of the great arteries of traffic, then you will regard the matter as one affecting vitally the commerce of Great Britain. If you agree with the Departmental Committee on Land Settlement that "the stability and physical strength of a nation depend largely on those classes who have had the advantages of country life," then you will be forced to the conclusion that remedial measures must be regarded in the light of Imperial needs. Let us, then, heed the warning ere it be too late. Bitterly have we regretted our supineness in the past. The future is an unwritten book: What shall posterity read therein?

#### FLOWER CULTURE MONTH BY MONTH.\*

We welcomed Miss Mary Hampden's first book, "Every Woman's Flower Garden," when it appeared, and are glad to know that, war-time and all, it has been most successful. Here is another volume by the same most capable lady gardener, continuing and extending that practical teaching in the growing of flowers which she has learnt, by study and experience, to give so well.

The book is divided into four parts, or seasons, and then, for each month of the year, we are taken round the garden and the greenhouse, and told what must be done and which flowers should then be cultivated. It is a good guide to all flower lovers, and a trustworthy adviser for every amateur gardener. Through her own work in her garden, and by means of her long practice in writing about her much-loved subject, Miss Hampden not only knows what must be done, but also knows how to tell others. With a clear, crisp, bright style she explains all the many details of the work needed in a garden during every month, and, indeed, daily and every day, if the garden is to grow and blossom. The numerous drawings and diagrams really do illustrate the book; while Miss Reeve's beautiful colour-plates shed a cheering glow over its pages. We are sure that every garden lover will find in this volume both aid and encouragement in the culture of their flowers.

Christ Church, Broadstairs, built from designs by Mr. A. Alban H. Scott, M.S.A., of Old Square, Lincoln's Inn, was consecrated last week. The contractor was Mr. J. T. May. Accommodation is provided for over 300 persons.

\* "Flower Culture Month by Month." By Mary Hampden. With 8 coloured plates by Mary S. Reeve, and 50 black-and-white illustrations. (London: Herbert Jenkins, Ltd. Price 5s. net.)

## Our Illustrations.

### THE CUNARD NEW OFFICES, LIVERPOOL.

This important and dignified block of commercial premises erected on the site of St. George's Dock on the Pierhead, Liverpool, is one of the very few great architectural achievements of the day which has not been brought to a standstill by the war. It was opened last week, but the directors decided that a formal opening ceremony would be inopportune just now. Our illustration is taken from the water-colour perspective now at the Royal Academy Exhibition. The architects are Messrs. Willink and Thicknesse, F.F.R.I.B.A., of Liverpool, acting conjointly with Messrs. Mewès and Davis, of London. The Cunard building is situated adjacent to the Liverpool landing stage, commanding a magnificent view of the Mersey Estuary. From this centre the Lancashire docks of the port stretch in an unbroken line north and south, while the great railway depots are all within a mile. Before commencing building it was decided to embed the piers which support the structure in the solid red sandstone forming the stratum underlying the old dock. Elaborate arrangements were made for a system of pumping, water finding its way into the old excavation, and with these preparations successfully negotiated the work proceeded apace. Operations commenced on December, 1912, and now in June, 1916, the Cunard Company have been enabled to move into their new palatial quarters. The style of building was a matter of much consideration, the difficulty being enhanced by the fact that the immense structure of the Royal Liver Company and the handsome offices of the Mersey Dock Board were in strong contrast. Eventually it was decided to embody the best features of the Italian Renaissance as represented by the Farnese Palace at Rome, which was completed about the middle of the 16th century. The length of the Cunard building from the front facade on the pierhead to the city facade is 330 ft., the width of the former being 170 ft., and the latter 200 ft. The height from the basement is 125 ft., and from the foundations in the bed of the old George's Dock, 170 ft. The contract for the construction was entrusted to Messrs. Cubitt, of London. The lower ground floor contains 11,000 square yards, besides two basements each of 12,000 square yards. The ground floor covers 10,100 square yards, and floors above are of approximately the same dimensions. The area of the various floors is little short of 100,000 square yards, or over 20 acres. Upon such a space, and allowing comfortable standing room, it would be possible to practically accommodate 400,000 people, or more than half the population of Liverpool. The amount of Portland stone used is 150,000 cubic ft., weighing about 11,000 tons. There are 700,000 cubic ft. of concrete, weighing about 45,000 tons, used in the building, and there are 2,000 tons of steel bars in the reinforced concrete. The building stands on a sloping rusticated base. Large plain wall surfaces above are broken only by the rusticated angles and between the windows of the first floor. The building is capped by a decorated frieze and heavy projecting cornice with a plain coping wall. Projecting doorways with refined detail in the porticoes, and arched windows to the ground floor, tend to enhance the plainness of the other parts of the building. The shields in the frieze on the pierhead elevation call attention to the period of disturbance during which the building has been completed, by bearing upon them the arms of the Allies, Great Britain and Ireland, France, Russia, Italy, Japan, Belgium, Serbia, and Montenegro are conspicuous, and at the four angles of the building is the shield of the Cunard Company, supported on a great eagle. On the heads of the third floor windows, looking towards the river, are the arms of the principal ports of the United Kingdom, and down the sides the ancient emblems of the signs of the Zodiac, while over the doorways and on the projecting base are nautical emblems, Storm and Neptune, Peace and War, Britannia and typical faces from distant

lands, such as the negro, the American Indian, the Australian aborigine, and others.

### "VICTORY HOUSE," COCKSPUR STREET, S.W.

The whole of the upper part of this new building has been taken over by the Admiralty for the home of the Board of Inventions. The premises face Pall Mall East, at the corner of which "Oceanic House" intervenes between Cockspur Street. The Southern Pacific Company occupy the right-hand splay of "Victory House." The front is carried out in Portland stone with bronze embellishments. We reproduce detail photographs of the bas-relief panels of "Banking," "Travel," "Industry," and "Commerce," by Mr. L. R. Roslyn, R.B.S. Messrs. Rice and Son were the contractors. The architects were Messrs. Metcalf and Greig, of Imperial Buildings, Kingsway, W.C.

### WHITELEY HOMES, WHITELEY PARK, BURNHILL, WEYBRIDGE, SURREY.

The materials used for these buildings are small bricks rubbed for gauged work. The roofs are covered with sandiaced tiles, and Portland stone is employed for the dressings. The central nurses' block is connected by loggias with Portland stone columns. The pavilions terminate the range of cottages on either side of the main road. The idea of the design has been to maintain a continuous facade so far as was compatible with the conditions of the scheme. Messrs. Henry Martin, Ltd., were contractors for the work. The stone masonry and carving were executed by Mr. Ammonier. The original design, we believe, was varied and somewhat reduced before being carried out. The architect of this group is Mr. Reginald Blomfield, M.A., R.A., F.S.A. We are enabled to include with the working drawings and details herewith reproduced a copy of the block plan showing how these cottages, pavilions, and nurses' block are contrived in alignment with the main and cross roads forming part of the octagonal contrivance of the Whiteley Park site.

### SKETCHES IN ITALY AND FRANCE, BY MR. ALICK G. HORSNELL, SOANE MEDALLIST AND TITE PRIZEMAN.

This group of sketches includes four evangelistic emblems in repoussé silver from the Bargello, at Florence. The knocker is from Bologna. The pair of French sketches, also lent us by Mr. Horsnell, are pencil studies. Le Grande Audely is famous for its half-timbered Hotel de Grand Cerf, remarkable for its sculptured facade of 16th Century date. The accompanying drawing from this town shows the south door of the Flamboyant church. The remaining sketch is from Nantes. The Cathedral and Chateau are near the chief railway station. The Cathedral was begun in 1434, but it is still incomplete. The west front has three porches filled with sculpture; that of the central portal depicts the Last Judgment. The triforium is richly elaborated, and the building contains some florid tombs, including the magnificent one to François II., last Duke of Brittany, by Michel Colomb, a native of St. Pol de Leon, in 1507. Near the Cathedral is the beautiful small facade of the church of Notre Dame, in the Renaissance style. Generally, however, the churches in Nantes are modern and of scanty interest to the architect.

The Yorkshire Electric Power Co. are about to expend about £100,000 upon extensions to their central power station at Ravensthorpe, near Thornhill.

Tenders are invited for the erection of the superstructure of a large new cartridge factory at Blackheath, near Birmingham. Messrs. Buckland and Farmer, of Norwich Union Chambers, Birmingham, are the architects.

Mr. R. M. Crosthwaite, an inspector under the Local Government Board, held an inquiry at Poole, Dorset, yesterday (Tuesday) into an application from the corporation for sanction to borrow £27,832 for water-supply purposes.

\* See BUILDING NEWS for May 31 for illustrations of the cottages carried out at Whiteley Park by Mr. Ernest Newton, A.R.A., from a drawing in the Royal Academy this year.



## PROFESSIONAL AND TRADE SOCIETIES.

**INSTITUTION OF MUNICIPAL AND COUNTY ENGINEERS.**—The annual congress of this institution will be held at Blackpool on Thursday, Friday, and Saturday, June 29 and 30 and July 1. On the Thursday the following six papers will be read and discussed:—"Civic Study in Civic Design," by Professor L. P. Abercrombie, F.R.I.B.A., University of Liverpool; "The Case for Obligatory Town Planning," by H. Shawcross and H. R. Aldridge; "A Municipal Engineer in Serbia," by Charles J. Jenkin, engineer, U.D.C., Finchley, N.; "Sanitation Problems in Civil Areas near Temporary Military Camps," by G. B. Hartree, F.S.I., surveyor to the U.D.C., Alton; "Public Abattoirs," by H. A. Brown, engineer, U.D.C., Weston-super-Mare; and "The Diesel Engine in Municipal Work," by F. Reginald Phipps, A.M.I.C.E., borough engineer, Basingstoke. In the evening a lantern lecture on "Transport Reform" is to be given at the Central Public Library, by Mr. A. E. Gattie, London. Friday morning will be devoted to the reading and discussion of six other papers, viz.:—"The Destruction of Roads," by Thomas Arnall, A.M.I.C.E., Birmingham Corporation; "Improvement of Highways to Meet Modern Conditions of Traffic," by W. H. Schofield, A.M.I.C.E., county surveyor, Lancashire; "Road Signs," by C. H. Cooper, M.I.C.E., borough engineer, Wimbledon; "Municipal Work at St. Anne's-at-the-Sea," with special reference to the Ashton Gardens and Open Air Swimming Baths, by J. Stanley Sawdon, A.M.I.C.E., engineer, St. Anne's-on-the-Sea; "Surveyors: Their Tenure of Office and Defence," by J. H. Drew, engineer, Wath-upon-Deane; "Diagrammatic Statistics for Municipal Engineers," by Regd. Brown, M.I.C.E., engineer, Southall-Norwood U.D.C. Friday afternoon will be given up to visits to public works in St. Anne's urban district, and in Blackpool, and to the opening ceremony by Lord Ashton of Ashton Gardens. The annual dinner will be held in the evening at the Hotel Metropole, whilst on Saturday visits will be made to Bispham, Fleetwood, Morecambe and Lancaster.

**LEEDS AND WEST YORKSHIRE ARCHITECTURAL SOCIETY.**—The annual general meeting of the above society was held on Thursday, June 15, at 5, Greek Street, Leeds, Mr. G. F. Bowman in the chair. Mr. Whitehead presented the annual report of the work done by the society for the past year, and mentioned the fact that at last the Department of Architecture at the Leeds School of Art, under Mr. G. J. Coombs, has received recognition from the Royal Institute of British Architects, and is the first provincial School of Art to obtain same. Mr. R. Fielding Farrar presented the annual balance sheet, which was adopted, and it was proposed, seconded, and approved that a sum of £150 be invested in the War Loan. The following officers were elected for the ensuing year: President, G. Fredk. Bowman; Vice-Presidents, J. F. Walsh, F.S.I., and C. B. Howdill, A.R.I.B.A.; Hon. Treasurer, R. Fielding Farrar, A.R.I.B.A.; Hon. Librarian, G. J. Coombs, A.R.C.A.; Hon. Secretary, Wm. Whitehead, A.R.I.B.A., and the following members of the Council: Messrs. W. J. Morley, F.R.I.B.A.; W. G. Smithson, A.R.I.B.A.; J. C. Procter, A.R.I.B.A.; J. E. Braithwaite, A.R.I.B.A.; W. Allen Jones, and Douglas Bowman (Associate Member).

**NORFOLK AND NORWICH ARCHITECTURAL SOCIETY.**—The annual meeting of this society was held at the Guildhall, Norwich, on Thursday, the Earl of Orford, the President, in the chair. The annual report, read by Mr. J. E. T. Pollard, the hon. secretary, stated, with regret, that it had been found impracticable to continue the publication of "Bryan's Norfolk Churches," which the three volumes on the Churches in the Hundreds of Shropham, Brother-cross, and Diss had already appeared, and the scheme must be abandoned, at any rate until after the war. The President, Vice-Presidents, and retiring members of committee having been re-elected, the members took part in an excursion in Norwich. They visited first of all St. Andrew's Church and the Suckling House, on St. Andrew's Hill,

where Mr. W. R. Rudd read a short paper. Next they visited the Cathedral, where Mr. Leonard Bolingbroke discoursed on the antiquities of the precinct between the west door and the Eppingham Gate, and where also a paper was read by the Dean on "The Chapels of the Cathedral." Finally the members visited King Edward VI. School, where the head master, the Rev. W. F. Brown, at a meeting held in the crypt, traced the history of the school down to modern times.

**SCOTTISH ECCLESIOLOGICAL SOCIETY.**—The annual excursion of the Scottish Ecclesiological Society, restricted this year, in view of the war, to an afternoon visit to Dunblane, took place on Saturday, the 10th inst. On arrival at the Cathedral the party, which included the President, the Rev. James Primrose, of Glasgow, was met and welcomed by the parish minister, the Rev. Alexander Ritchie, B.D. The history of the Cathedral was then sketched by Dr. Thomas Ross, architect, Edinburgh, from the revival of the diocese by David I. about 1150. The party then proceeded to inspect the Cathedral and to note the latest additions to its furnishing—the choir stalls, altar screen, and organ case—designed by Sir R. S. Lorimer and illustrated in our issue for December 14, 1914.

## LEGAL INTELLIGENCE.

**BUILDING OF A PORTOBELLO CHURCH.**—R. AND J. SCOTT v. J. GERRARD.—In the Second Division of the Scottish Court of Session, on Thursday, the Lord Justice-Clerk and Lords Dundas, Salvesen, and Guthrie, disposed of a reclaiming note for the pursuers in the action by R. and J. Scott, joiners and builders, Portobello, against James Gerrard, 13, John Street, Portobello, and others, members of the Building Committee of St. James's Church, Portobello, for payment (1) of £283 7s. 9d., in respect of work done under and loss of profits for wrongful termination of a contract under which the pursuers were to carry out the carpenter and joiner work in connection with a church being built by the defenders; (2) of £60 as loss of profit arising from the wrongful termination of a separate contract in connection with the supply of seats for the church. It was maintained before the Lord Ordinary that the architect was not justified in so terminating the contract. In the Division the pursuers conceded that the architect was entitled to bring the contract to an end, but they maintained that his having done so destroyed the whole contract and prevented the defenders from appealing to the arbitration clauses. The defenders contended that the action should be dismissed in respect of the arbitration clauses of the contract. Lord Hunter dismissed the action with expenses to the defenders, holding that, in view of the arbitration clauses, the action could not be maintained. A reclaiming note was lodged by the pursuers, and the defenders added a plea to the effect that the action should be sisted to wait the result of the arbitration. The Division now recalled the interlocutor of the Lord Ordinary, sisted the action to wait the result of the arbitration on the pursuers' first claim, and allowed a proof with regard to their second claim. The reclaimers were found liable in half of the expenses of the reclaiming note. The Lord Justice-Clerk said that while the contract was declared by the architect to be at an end so far as the completion of the work was concerned, the contract was not ended with regard to the contractual rights and obligations of the parties, and that the arbitration clauses still remained effectual to cover the dispute relating to the pursuers' first claim. There were no relevant averments by the pursuers pointing to the disqualification of the architect to act as arbitrator. On the question as to the seating contract, his Lordship differed from the Lord Ordinary. That part of the contract was constituted by letters, and, in view of these letters and the pursuers' averments, this part of the case did not fall within the arbitration clauses, and must be sent to proof.—Lord Dundas and Lord Guthrie concurred with the Lord Justice-Clerk. Lord Salvesen, who dissented with regard to the first claim, took the view that the contract was ended for all purposes, and that this part of the case was not excluded from the ordinary tribunals of the country. With regard to the second claim, he agreed with the other judges.

The thirtieth list of members, licentiates, and students R.I.B.A. serving with the Forces shows a total to date of 62 Fellows, 454 Associates, 254 Licentiates, and 277 students.

## COMPETITIONS.

**RE-PLANNING OF DUBLIN.**—Mr. William A. McConnell, assistant hon. secretary to the Civics Institute of Ireland, writing from 7, Ely Place, Dublin, announces that the Marquis of Aberdeen has, in view of the altered circumstances prevailing in Dublin, authorised the adjudication of his competition to proceed, and the work has now been put in hand.

**A HARVARD TRAVELLING FELLOWSHIP.**—The annual competition for the award of the Robinson Travelling Fellowship in Architecture at Harvard University has just been held. The subject was "A Monument to the Unknown Dead in a Great War," to be placed on the banks of a river, against a steep hill. The jury consisted of Dr. Charles A. Coolidge and Mr. Guy Lowell, acting with the instructors in the school. The design placed first was that of Mr. Jean Vernon Wilson, of Pittsburgh, P.A., master in architecture, Harvard University, 1915. The design of Mr. James Hicks Stone was placed second and was highly commended by the jury. The successful candidate will be given the option of going to Europe for two years' travel now or waiting the termination of the war.

## TO CORRESPONDENTS.

RECEIVED.—C. D., Ltd. (F. D.)—Q. S. A.—Q. M. S.—J. Hogan, Ltd.—Fido—Col. M.—F.R.I.B.A.—J. and S.—T. S.—M. J. W.—H. and C.—A. R. A.—G.

P. M.—Yes.

R. R.—Thanks; please send.

ONO.—Optional; first suggestion seems the better.

**THE ONLY WAY.**—Readers, and they are not a few, who complain of being unable to obtain chance copies of this journal at newsagents and book-stalls are assured it is no fault of ours. Month by month the price of paper is still rising, and the difficulty of obtaining it is increasing. Under these circumstances it is impossible for us to supply the trade with overplus copies, or for them to stock them, only to have them left on their hands as returns. The only way to secure regular delivery, therefore, is for readers to subscribe direct to the office, or to place a regular order with their newsagent or bookstalls.

**CIVIC ARTS COMPETITION.**—In THE BUILDING NEWS of January 24, 1906, will be found an excellent drawing to good size, with details, showing the Hales alabaster tomb, specially mentioned last week in our review of Mr. Herbert Batford's "English Mural Monuments." This example, dated 1594, is about 14 ft. high, and is characterised by much skill and originality of design. Our plate was reproduced from a sheet of sketches to scale by Mr. J. J. Joass, F.R.I.B.A., when he was Pugin student. The tomb is in the chapel adjoining the south transept of Canterbury Cathedral. The landscape alluded to is in colour, and the ship, in full sail, is in low relief, very decoratively executed.

## TRADE NOTES.

Mr. Ernest G. Theakston has removed his offices to 12, New Court, Carey Street, Lincoln's Inn, W.C. His new telephone number is Central 660.

Under the direction of Mr. H. Foxall, Lic.R.I.B.A., Carlisle, Boyle's latest patent "Air-Pump" ventilators have been applied to the New Public Hall, Carlisle.

The Sherburn Picture Hall, Hull, is being supplied with Shorland's special inlet ventilators by Messrs. E. H. Shorland and Brother, Limited, of Failsforth, Manchester.

Messrs. W. Shepherd and Sons, Limited, of Rochdale, the manufacturers of "Reli" asphalt concrete paving, have been favoured with a contract from the Staffordshire County Council in connection with two of their schools.

In conformity with the campaign of economy in paper, Messrs. S. W. Francis and Co., Ltd., of Gray's Inn Road, have refrained from issuing their usual yearly catalogue. In its place they send us a smart and well-printed sheet, entitled "A Catalogue in Miniature." We recommend it to the notice of all interested in garages, sheds of all kinds, shutters, facias, shop-fronts, and sun-blinds.

In hospital construction the authorities are rightly taking every precaution to avoid dampness penetrating the brickwork. In the Small-box Hospital, at Ipswich, the cavity walls were grouted with waterproofed cement. We also hear that the new Medical Offices of Health at Ipswich were similarly built with Puddled cement, and the result in both cases has been most satisfactory.

A permanent church of St. Stephen, estimated to cost £2,200, is being built at Stratford, E., on a site now occupied by a temporary iron building.



## Our Office Table.

Major Basil Edward Bailey, F.R.I.B.A. (of Nottingham), 7th Robin Hood Battalion, Sherwood Foresters, who was severely wounded in Flanders, is now making good recovery. When he leaves hospital he will go to Roehampton to have an artificial hand fitted. Second-Lieut. Geoffrey Ronald Gilbertson Topham, A.R.I.B.A., 18th Battalion, London Regiment, who was seriously wounded by a shell at Vimy Ridge on May 10, is also, we are pleased to hear, progressing favourably. Lieut. Topham joined the Artists' Rifles, the *R.I.B.A. Journal* states, in August, 1914; thence he obtained a commission and was transferred to the London Irish Rifles (18th Battalion, London Regiment). He went to the Front on July 8, 1915, and has served with his battalion there ever since. His gazetted rank is still Second-Lieutenant, but he has been "acting" Captain since the battle of Loos in September last. He was for a few days in the Base Hospital at Le Tréport, and is now in hospital in London.

In his presidential address before the Institution of Gas Engineers, Mr. John Young touched on a new aspect of "Summertime." "The Daylight Saving Bill," he said, "has become a *fait accompli*, but it is impossible to say just how it will affect the purveyors of artificial light. I am of opinion that it will make very little difference, if any. The only effect that I can see up to now is that the poor children who have to make the street their playground are robbed of an hour's sleep. They appear to run about until it is dark just as they used to do; but they have to get up an hour earlier in the morning. I do not think that this is altogether good. Sleep is very necessary to the growing child." This is true enough, and equally so that artificial restrictions of the sort we are enduring do little good to any, and harm to many.

The report of the Chief Registrar of Friendly Societies on building societies in 1914, just issued as a Blue-book, states that the position of building societies is indicated by the fact that advances on mortgage during that year were nearly £8,900,000, whereas in 1913 they were over £9,200,000. A total of returns to July 31, 1914, just previous to the outbreak of war, gives over £9,400,000 as advanced during the year ended on that date. It is hoped to prepare figures to a similar date in 1915, for purposes of estimating any effect of the war on advances. The amount due to depositors was over £16,000,000, or about £100,000 less than in 1913. The amount due to shareholders, £47,165,000, was some £900,000 more than in 1913. Fourteen building societies were added to and 61 removed from the register in 1914.

Mr. A. E. Mirams, consulting engineer to the Indian Government at Bombay, contributes to the *Local Self-Government Gazette of Madras* an article making suggestions for improving the housing conditions in the villages and smaller towns of India—one of the most serious social problems of that country. The existing evils are the results, says Mr. Mirams, of the uncontrolled development of towns in the past, and the almost complete absence of by-laws and regulations governing the sites and construction of dwellings. Mr. Mirams expects good results from the operation of the Town-Planning Act passed last year. To solve the grave problems existing, he suggests that provision must be made for the maintenance and provision of existing houses, the clearance of existing insanitary areas, and the provision of a large number of new houses. Further, there is an urgent need for the improvement of the present roads, and also for the construction of many new roads, both arterial and non-traffic.

Some of the most recently built houses in America are being equipped with a cooling cabinet, which is designed to fulfil the functions of the refrigerator to a very great extent, if not entirely. It makes use of no ice, chemicals, or machinery, but its interior is maintained at a temperature sufficiently low

to keep viands in good condition for a moderately long period to answer all domestic purposes. The cabinet is kept cool by a circulation through it of the cold water used for the ordinary household purposes. This water circulates about each of the chambers of the cabinet, and the temperature is maintained at an even rate, which can always be relied upon. After its passage through the piping of this device it is discharged at the regular faucets.

The general and organising secretary of the National Federation of Property Owners (Mr. Bertie B. Moss, of Liverpool) has issued the agenda for the half-yearly meeting and thirty-fourth conference to be held at the Law Rooms, Liverpool, on Friday next, the president, Mr. E. Russell Taylor, of Wallasey, in the chair. About 100 delegates from all parts of the country, together with local members, are expected, and will be received by the Lord Mayor of Liverpool. Both visiting and local speakers are to address the conference on the following resolution:—"That in order to restore confidence in the Real Estate Market, legislative enactments which have in the past created difficulties hampering building operations, should be amended, or, if necessary, repealed, and private enterprise be again afforded every possible support and encouragement to continue to provide housing accommodation for the people in conjunction with other agencies who have in the past undertaken this work." "To consider the position with regard to the Rawtenstall case" forms the succeeding item. In this test case, which has been before several courts, a private owner and the municipal council joined issue on the question of damages for the collapse of a gable during the construction of a drain. At present victory rests with the private owner, whose cause the federation espoused as a test case. It will probably be pointed out that only a combination of private owners could afford to contest a question which an East Lancashire Corporation has thought worth carrying from court to court. Sir Charles Fortescue-Brickdale is to speak at the afternoon session. A barrister and registrar of the office of Land Registry, he has written considerably on land law and practice.

Mr. McKinnon Wood, M.P., on the conclusion of his visit to Scotland, where he considered business relating to the Scotch Department, and visited shipyards and munition works, received on Saturday at Glasgow a deputation representing the Trade Unions Co-operative Guilds and similar organisations included in the Glasgow Labour Party Housing Association. The delegates dealt with the serious shortage of housing accommodation, particularly in the munitions area on the Clyde, and asked the Scottish Secretary to lay before the Government the urgent necessity for the State providing, interest free, ground for house building. The Secretary for Scotland, in reply, said the proposal would require careful consideration, as it implied practically one million sterling for Glasgow alone the first year, and if they took the United Kingdom on the same basis of population, that represented fifty millions sterling. There were three difficulties in the way of dealing with such a question during the war—first, the enormous artificial increase of cost of building material; second, the great scarcity of labour; and third, the very high rate of interest that the State had now to pay. Glasgow housing conditions were extremely unsatisfactory, and something would have to be done to deal with the conditions that were prejudicial to health and damaging to the moral standard of the community, but he was afraid they must wait till after the war.

A Local Government Board inquiry, conducted by Mr. G. L. Pepler, was held on Friday at the Municipal Buildings, South Shields, in regard to applications by the South Shields Corporation and the South Shields Rural District Council for sanction to prepare town-planning schemes. The town clerk, Mr. J. Moore Hayton, who represented the Corporation, explained that the two areas which it was proposed to utilise for town planning consisted of 3,635 acres, of which 862

acres were within the borough and 2,773 in a rural district. The housing system in vogue was the erection of long rows of houses of a monotonous type, and, as a result, the population was thickly congested. The average number of persons per acre over the whole borough was forty-five or forty-six. The town council had been for some time considering the question as to what they ought to do in order to avoid the defects in the future extension of the borough, and they had come to the conclusion that the proper method was to adopt the Town Planning Act and prepare a planning scheme for the undeveloped land. Evidence was given in support of the scheme by Alderman W. Allon, chairman of the town-planning sub-committee; Mr. L. Rosevear, borough engineer; and Mr. D. M. Matheson, medical officer. The inquiry was concluded.

The governors of the North of Scotland School of Agriculture, at their meeting in Aberdeen on Friday, Dr. James Campbell presiding, received a report from their forestry committee stating that the Board of Agriculture had informed them that they viewed with concern the shortage in the supplies of forest tree seed from foreign countries and the inadequacy of the existing home resources to meet the demand for seedlings and plants in the near future. They therefore proposed to collect seed in the forest areas which are being felled by the Home-Grown Timber Committee, and to buy seeds from home sources, and to sow these in nurseries to be established at the Agricultural Training Centres or elsewhere where suitable land may be found available. The Board, therefore, inquired whether the governors of the college would be prepared to put at the disposal of the Board an area of ground at Craibstone suitable for the formation of a large nursery. The committee had intimated to the Board of Agriculture their readiness to help, and the result of the negotiations is an arrangement that an area of about 1½ acres in the experimental field should be laid out as a forest nursery this year, arrangements being made for extension next year if necessary. Sir John Fleming, in moving the adoption of the report, which was agreed to, stated that a portion of the timber on the estate of Craibstone had been sold to the Home-Grown Timber Committee for £2,594. What was left was valued at £2,000. The governors had originally paid £1,800 for the wood on the estate.

The parishioners of St. Botolph, Bishopsgate, made a presentation on Thursday, in the parish room, to Mr. Albert Pridmore, F.S.I., past President of the Society of Architects, at the close of his six years' churchwardenship. The Rev. G. W. Hudson-Shaw, M.A., the rector, occupied the chair, and referred to Mr. Pridmore's services in connection with the restoration of the church, the defence of the title rate, and the establishment of a rifle range. Mr. Churchwarden John Todd, M.S.A., District Surveyor for the City of London, Eastern Division, moved a resolution expressing the gratitude and good wishes of the parishioners. Mr. A. C. Stanley Stone, C.C., seconded the motion, and it was carried unanimously. Mr. Alderman Edward C. Moore presented Mr. Pridmore with a cheque for the purchase of plate as an expression of their affection and appreciation. Mr. Pridmore, in acknowledgment, thanked the sidesmen and others who had helped in the many special services of the church. One of their rectors, he went on to say, had become the Bishop of Salisbury, and another the Canon of Jerusalem. If, in fact, a clergyman wanted to get preferment, he could not do better than go to St. Botolph's, Bishopsgate. Dr. Beswick, Major J. S. Holloway, V.D. (treasurer of the fund), and Mr. D. A. Romain also addressed the meeting.

The distinction of C.M.G. has been conferred by the King upon Brigadier-General A. B. Hubback, F.R.I.B.A., who, before the war, was in the Public Works Department, Kuala Lumpur, Selangor, Malay Federated States, and that of D.S.O. upon Major and Hon. Lieut. Col. A. W. Brewell, A.R.I.B.A., Scots and Derby Regiment. Captain H. E. Moore, A.R.I.B.A., Royal Northampton Engineers, and Second Lieut. C. H. Calvert, A.R.I.B.A., Royal Artillery, have received the Military Cross.

## LATEST PRICES.

N.B.—All prices must be regarded as merely approximate for the present, as our usual sources of information are in many cases failing us.

## TIMBER.

Owing to stoppage of supplies all prices have advanced considerably.

IRON.		Per ton.	Per ton.
Rolled Steel Joists, English.	£20 0 0	to £21 0 0	
Compound Girders, Ordinary	22 0 0	23 0 0	
Compound Stanchions	23 0 0	24 10 0	
Wrought-Iron Girder Plates	13 10 0	13 12 6	
Steel Girder Plates	13 15 0	13 17 6	
Steel Sheets (Single or Double)	11 10 0	—	
Steel Strip	10 15 0	—	
Base Bars	11 15 0	—	
Mild Steel Bars	18 0 0	18 10 0	
Steel Bars, Ferro-Concrete	—	—	
Quality (basis price)	18 0 0	—	
Bar Iron, good Staffs	15 10 0	15 15 0	
Do., Lowmoor, Flat, Round, or Square	24 0 0	—	
Do., Staffordshire Crown	16 0 0	16 10 0	
Boiler Plates, Iron—	—	—	
South Staffs	8 0 0	8 15 0	
Best Smedshill	9 0 0	9 10 0	
Angles, 10s, Tees 20s, per ton extra.	—	—	
Builders' Hoop Iron, for bonding, £13 5s. to £13 15s.	—	—	
Do., galvanised, £20 to £20 10s. per ton.	—	—	

Galvanised Corrugated Sheet Iron—		No. 18 to 20.	No. 22 to 24.
6ft. to 8ft. long, inclusive	Per ton.	Per ton.	
gauge	£30 0 0	£30 10 0	
Best ditto	32 0 0	32 10 0	

	Per ton.	Per ton.
Cast-Iron Columns	£13 10 0	to £14 0 0
Cast-Iron Stanchions	13 10 0	" 14 0 0
Rolled-Iron Fencing Wire	8 15 0	" 9 5 0
Rolled-Steel Fencing Wire	7 15 0	" 8 0 0
Do., Galvanised	6 5 0	" 6 15 0
Cast-Iron Sash Weights	7 0 0	" 7 10 0
Out Floor Brads	15 0 0	" 15 5 0
Corrugated Iron, 24 gauge	16 0 0	" —
Galvanised Wire Strand, 7 ply,		

B.B. Drawn Telegraph Wire, Galvanised—		0 to 8	9	10	11	12	B.W.G.
£10 10s.	£10 15s.	£11 0s.	£11 5s.	£11 10s.	£11 15s.	per ton.	
Cast-Iron Socket Pipes—							
3 in. diameter	£7 5 0	to £7 12 6					
4 in. to 6 in.	7 0 0	7 2 6					
7 in. to 24 in. (all sizes)	7 0 0	7 2 6					
(Coated with composition, 5s. 0d. per ton extra.							
Turned and bored joints, 5s. per ton extra.]							

Turned and bored joints, 5s. per ton extra.	Per ton.
Cold Blast, Lillieshall .....	137s. 6d. to 142s. 6d.
Hot Blast, ditto .....	100s. 0d. „ 107s. 0d.
Wrought-Iron Tubes and Fittings—Discount off	
Standard Lists (c.o.b. plus 2½ per cent.)—	
Gas-Tubes .....	58½ pc.
Water-Tubes .....	55 „
Steam-Tubes .....	51½ „
Galvanised Gas-Tubes .....	47½ „
Galvanised Water-Tubes .....	45 „
Galvanised Steam-Tubes .....	37½ „

## OTHER METALS.

	Per ton.	Per ton.
Lead Water Pipe, Town.....	*£41 0 0	to —
" " " Country.....	*42 0 0	—
Lead Barrel Pipe, Town.....	*42 0 0	—
" " " Country.....	*43 0 0	—
Lead Pipe, tinned inside, Town.....	*43 0 0	—
" " " Country.....	*44 0 0	—
Lead Pipe, tinned inside and outside.....	Town *45 10 0	0 " —
" " " Country.....	*46 10 0	0 " —
" Composition Gas-Pipe, Town.....	*44 0 0	0 " —
" " " Country.....	*45 0 0	0 " —
Lead Soil-pipe (up to 4 in.) Town.....	*44 0 0	0 " —
" " " Country.....	*45 0 0	0 " —
[Over 4 in. £1 per ton extra.]		

Lead, Common Bars	25 10 0	26 0 0
Lead, 4lb. sheet, English	35 15 0	36 5 0
Lead Shot, in 28lb. bags	24 15 0	—
Copper Sheets, Shagbark & Rods	170 0 0	171 0 0
Copper, British Cake and Ingots	150 0 0	155 0 0
Tin, English Ingots	206 0 0	207 0 0
Do., Bars	207 0 0	208 0 0
Pig Lead, in 10wt. Pigs, Town	33 12 6	34 12 0
Sheet Lead, Town	40 10 0	—
" " Country	41 10 0	—
Genuine White Lead	58 0 0	—
Refined Red Lead	58 0 0	—
Sheet Zinc	145 0 0	—
Spelter	93 0 0	110 0 0
Old Lead, against account	29 5 0	—
Tin	10 5 0	—
Cut nails (per cwt. basis, ordinary brand)	1 3 0	—

\* For 5 cwt. lots and upwards.

## I BUY

## SCRAP METALS

ARTHUR P. COLLINS, Snow Hill, BIRMINGHAM.

Phone Central 1020. Telegrams: "Metalis" Birmingham.

Bankers: The National Provincial Bank of England, Ltd., Bennett's Hill, Birmingham.

SLATES		in.	in.	£ s. d.	per 1,000 of
Blue Portmadoc	20 x 10	11	2	6	1,200 at r. std.
" " "	16 x 8	10	5	10	0
First quality	16 x 10	10	12	6	" "
Blue Bangor	20 x 10	11	5	0	" "
" " "	20 x 12	11	17	6	" "
First quality	20 x 10	11	0	0	" "
" " "	20 x 12	10	12	6	" "
" " "	16 x 8	5	10	0	" "

Eureka unfading		in.	in.	£ s. d.	per 1,000 of
green	20	10	15	17	6
" " "	20	12	18	7	6
" " "	18	10	13	5	0
" " "	16	8	10	5	0
Permanent Green	20	10	11	12	6
" " "	18	10	9	12	6
" " "	16	8	6	12	6

## BRICKS.

(All prices net.)

First Hard Stocks	£2 0 0	per 1,000 alongside, in
Second Hard Stocks	1 16 0	" " " " " " " "
Mild Stocks	1 14 0	" " " " " " " "
Picked Stocks for	—	delivered at
Facings	2 12 0	raily station.
Flettons	1 13 0	" " " " " " " "
Pressed Wire Cuts	1 18 0	" " " " " " " "
Red Wire Cuts	1 14 0	" " " " " " " "
Best Fareham Red	3 12 0	" " " " " " " "
Best R.d. Pressed	—	" " " " " " " "
Ruabon Facing	5 5 0	" " " " " " " "
Best Blue Pressed	—	" " " " " " " "
Staffordshire	5 0 0	" " " " " " " "
Ditto Bulloose	5 5 0	" " " " " " " "
Best Stourbridge Fire-	—	" " " " " " " "
bricks	4 15 0	" " " " " " " "
2½ in. Best Red Ac-	—	" " " " " " " "
cring Plastic	4 10 6	" " " " " " " "
Facing Bricks	—	" " " " " " " "

3½" Accrington Best Red Plastic Facing Bricks	£2 10 0
3½" ditto Second Best Plastic ditto	2 2 6
Ditto Ordinary Secondary Bricks	1 11 3
Ditto Plastic Engineering Bricks	1 17 6

Sewer Arch Brick, not more than 3½ in thick at part.	2 0 0
3½" Chimney Bricks fit for outside work	2 6 0
3½" ditto ditto through and through	2 0 0
3½" Beaded, Ovolo and Bevel Jambes; Octagons; 2½" and 3" radius Bullnoses; Stock patterns	3 7 6
Accrington Air Bricks, 9" x 2 course deep, each	0 0 6
Ditto ditto 9" x 1 course	0 0 3

Accrington Camber Arches—	
3 course deep 4½" soffit, per foot opening	0 1 3
4 " " " " " "	0 1 8
5 " " " " " "	0 2 1
6 " " " " " "	0 2 6
3 " " " " " "	0 2 1
4 " " " " " "	0 2 11
5 " " " " " "	0 3 6
6 " " " " " "	0 4 6
Net free on rail, or free on boat at works.	

## GLAZED BRICKS.

HARD GLAZES (PER 1,000).

White, Ivory, and Best.		Buff, Cream, and Other		Seconds	
Stretchers—		Best.	Seconds.	& Bronze, Colours.	Colours.
£13 7 6	£12 7 6	£14 17 6	£18 17 6	£13 17 6	
Double Stretchers—					
12 17 6	11 17 6	14 7 6	18 7 6	13 7 6	
Quoins, Bullnoses, and 4½ in. Flats—					
16 17 6	15 17 6	18 17 6	22 7 6	17 7 6	

Double Stretchers—					
18 17 6	17 17 6	21 17 6	25 7 6	19 7 6	
Double Headers—					
15 17 6	14 17 6	18 17 6	22 7 6	16 7 6	
One side and two ends, square—					
19 17 6	18 17 6	22 17 6	27 7 6	20 7 6	
Two sides and one end, square—					
20 17 6	19 17 6	23 17 6	27 17 6	21 7 6	
Spalls and Squints—					
18 7 6	17 7 6	22 17 6	25 17 6	18 17 6	
Stretchers out for Closets and Nicked Double Headers, £1 per 1,000 extra.					
Compass Bricks, Circular and Arch Bricks, not exceeding 9 x 4½ x 2½ in., of single radius, £6 per 1,000 over and above list for their respective kinds and colours.					

The following prices of Special Bricks are plus 12½ %:—	
Plinth and Hollow Bricks, Stretchers and Headers—	
5d. each 4d. each 6d. each 6d. each 5d. each	
Double Bullnose, Round Ends, Bullnose Stops—	
5d. each 4d. each 6d. each 6d. each 5d. each	
Rounded Internal Angles—	
4d. each 3d. each 5d. each 5d. each 4d. each	
Camber Arch Bricks, not exceeding 9 x 4½ x 2½ in., any kind or colour, 1s. 2d. each.	

## MOLDED BRICKS.

Stretchers and Headers—					
8d. each 8d. each 8d. each 8d. each 8d. each					
Internal and External Angles—					
1/2 each 1/2 each 1/2 each 1/2 each 1/2 each					
Sill Bullnose, Stretchers, and Headers—					
5d. each 4d. each 6d. each 6d. each 5d. each					

Majolica or Soft Glazed Stretchers and Headers	Per 1,000
" " " " " "	28 17 6
" " " " " "	28 17 6

These prices are carriage paid in full truck loads to London Stations.

## SAND AND BALLAST.

S. d.		per yard, delivered.
Thomas Sand	8 3	" "
Ballast	8 3	" "
Pit Sand	8 6	" "

## CEMENT AND LIME.

S. d.		Per ton.
Best Portland Cement	45 0	to 48 0 delivered.
Ground Blue Lias Lime	25 6	per ton, delivered.
Exclusive of charge for sacks.		
S. d.		Per yard.
Grey Stone Lime	18 0	to 18 6 delivered.
Stourbridge Fireclay in sacks 30s. 0d. per ton at railway station.		

## STONE.\*

Yellow Magnesian, in blocks	per foot cube	£0 3 3
Red Mansfield, ditto	" "	0 2 9
Red Corsehill, ditto	" "	0 2 6
Darley Dale, ditto	" "	0 2 5
Greenshill, ditto	" "	0 2 4
Closaburn Red Freestone, ditto	" "	0 2 2
Amoaster, ditto	" "	0 2 0
Beer Stone, delivered on rail at Seaton Station	" "	0 1 1
Ditto, delivered at Nine Elms Station	" "	0 1 7½
Chilmark, ditto (in truck at Nine Elms)	" "	0 1 10½
Hard York, ditto	" "	0 2 0
Do. do. 6 in. sawn both sides, landings, random sizes	per foot sup.	2 8
Do. do. 3 in. slab sawn two sides, random sizes	per foot cube	£ s. d. 0 1 3
Bath Stone—Delivered in railway trucks at Westbourne Park, Paddington (G.W.R.), or South Lambeth (G.W.R.)	" "	0 1 7
Delivered in railway trucks at Nine Elms (L. & S.W.R.)	" "	0 1 8½
Delivered on road waggons at Nine Elms Depot	" "	0 1 9½
Portland Stone—Brown Whitbed in random blocks of 20 ft. average, delivered in railway trucks at Westbourne Park (G.W.R.), South Lambeth (G.W.R.), or Nine Elms (L. & S.W.R.)	" "	0 2 5½
Delivered on road waggons at Pimlico Wharf or Nine Elms Depot	" "	0 2 6½
White Bathed—2d. per foot cube extra.	" "	

\* All F.O.R. London.

## TILES.

a. d.		Divrd. ab
Plain red roofing tiles	42 6	per 1,000 ry. sq.
Hip and Valley tiles	5 6	per doz.
Broseley tiles	52 6	per 1,000 "
Ornamental tiles	55 0	" "
Hip and Valley tiles	5 6	per doz.
Ruabon red, brown, or brindlad ditto (Edwards)	57 6	per 1,000 "
Ornamental ditto	60 0	" "
Hip tiles	4 0	per doz.
Valley tiles	3 0	" "
Selected "Perfecta" roofing tiles: Plain tiles (Peake's)	46 0	per 1,000 "
Ornamental ditto	48 6	" "
Hip tiles	3 10	per doz.
Valley tiles	3 4	" "
"Rosemary" brand plain tiles	48 0	per 1,000 "
Ornamental tiles	50 0	" "
Hip tiles	4 0	per doz.
Valley tiles	3 8	" "
Staffordshire (Hawley) Reds or brindlad tiles	42 6	per 1,000 "
Hand-made sand-faced	45 0	" "
Hip tiles	5 6	per doz.
Valley tiles	5 6	" "
"Hartshill" brand plain tiles, sand-faced	45 0	per 1,000 "
Pressed	42 6	" "
Ornamental ditto	47 6	" "
Hip tiles	4 0	per doz.
Valley tiles	3 6	" "

## OILS.

Rapeseed, English pale, per ton	£28 15 0	to £29 5 0
Ditto, brown	26 15 0	to 27 6 0
Cottonseed, refined	29 0 0	to 30 0 0
Olive, Spanish	39 10 0	to 40 0 0
Seal, pale	21 0 0	to 21 10 0
Cocoonut, Cochio	46 0 0	to 46 10 0
Ditto, Ceylon	42 10 0	to 43 0 0
Ditto, Mauritius	42 10 0	to 43 0 0
Palm, Lagos	32 5 0	to 33 5 0
Ditto, Nut Kernel	35 0 0	to 35 10 0
Oleine	17 5 0	to 19 5 0
Sperm	30 0 0	to 31 0 0
Lubricating, U.S.	0 7 0	to 0 8 0
Petroleum, refined	0 0 6½	to 0 0 6
Tar, Stockholm	1 6 0	to 1 10 0
Ditto, Archangel	0 19 6	to 1 0 0
Linseed Oil	0 3 4	—
Baltic Oil	0 3 7	—
Torpetine	0 3 7	—
Putty (Genuine Linseed Oil)	0 11 0	—
Pure Linseed Oil	0 11 0	—
"Stority" Brand	0 11 0	—

## GLASS (IN CRATES).

English Sheet Glass	15 oz.	21 oz.	26 oz.	32 oz.
Fourths	4½ d.	6 d.	6½ d.	7½ d.
Thirds	5½ d.	6½ d.	7 d.	8½ d.
Fluted Sheet	6 d.	7 d.	—	—
Hartley's English Rolled Plate	½ in. 4 d.	¾ in. 4½ d.	1 in. 4 d.	1 in. 4 d.
		White.	Tinted.	
Figured Rolled		5 d.	6 d.	
Reposaine		4½ d.	5½ d.	
Rollad Sheet		4½ d.	—	

# THE BUILDING NEWS

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### OUR ILLUSTRATIONS.

The Sir William Pearce Memorial Institute, Govan, N.B., Sir R. Rowland Anderson, LL.D., F.R.S.E., F.R.I.B.A., Royal Gold Medalist 1916, Architect.

### Strand, W.C.

New Church of St. Luke, Walsall. Mr. Temple Moore, F.R.I.B.A., Architect.  
A Drawing room and Dining-room Decorated in Malton.  
House at Beconham, Hants, for the Right Hon. Lord Montagu. View and plan. Messrs. Tubbs, Messer, and Poulter, Architects.  
"Hackett Way," Porlock, Somersetshire. View and plan. Messrs. Tubbs, Messer, and Poulter, Architects.  
No. 10, Salisbury Square, E.C. Messrs. Castle and Warren, Architects.  
St. Michael's Church (R.C.), Montreal, Canada. Erected throughout in concrete. Mr. Beaupré-Champagne, Architect.

## Currente Calamo.

The statement that appeared in the daily Press a few days ago that the President of the Royal Institute of British Architects has been appointed by the Minister of Munitions to advise the Ministry in a voluntary capacity on various problems arising out of the stoppage of building operations is accurate, but a little belated, for Mr. Ernest Newton, A.R.A., has been rendering aid in this capacity of the highest value to all parties for more than two months past. Without fee or public recognition Mr. Newton has given daily service at the Ministry, and effected many compromises of the greatest utility to all concerned.

The position, as we understand it, is as follows:—Owing to the shortage of labour, munition and other factories most urgently required for war purposes are being delayed, and it has become necessary to secure some measure of control over private buildings in order to secure this labour. Let us suppose, for example, that a limited company has partially completed a large factory for the production of an article useful to the community, and which has hitherto been largely imported from a country communications with which are being rendered difficult by our Naval patrol. The Ministry of Munitions communicates with the company, pointing out the necessity of getting labour from private undertakings, and suggests the advisability of a temporary stoppage of the work, whereupon a deputation waits on the Ministry. The managing director explains the importance of the industry and the architect produces the plans showing an up-to-date factory. An inspector from the Ministry visits the building, and his report reveals the fact that many of the buildings are already finished, with the exception, however, of some partially built structures which are nevertheless vital to the working of the concern. A compromise is effected whereby the essential buildings are to be completed and non-essential ones stopped. Part of the labour is released at once, and the rest as the uncompleted parts are finished. It is clear that in such a supposititious case there would be opportunities for the utilisation of those qualities of

wide technical knowledge and experience, of patience, courtesy, and impartiality and, above all, of the grace of the *suaviter in modo*, each pre-eminently possessed by the President of the Royal Institute. We have reason to know that Mr. Newton's services in this direction have been highly appreciated by all parties concerned.

An unprecedented and very trying session of the Architectural Association has just been brought to a close. The loss of income from subscriptions and school fees due to the war and the decrease of students brought about a financial crisis, and in January it became necessary to sell the Royal Architectural Museum premises in Tufston Street to the National Lending Library for the Blind, and to remove temporarily to a very cramped and inconvenient house in Great Smith Street, at the rear of the former headquarters. Here, and in a house close by, the School of Architecture has been continued by Mr. Robert Atkinson with a lessened staff, the students being reduced now, we believe, to about a score, all medically unfit for service or under military age. The President, Mr. H. Austen Hall, and Council have now weathered the storm, and as soon as there appear definite prospects of peace will seek more commodious and more centrally situated premises. Towards this they have about £9,000 in hand. The new President, Mr. A. G. R. Mackenzie (whose portrait appears on another page), comes to the chair at a difficult time, but it is probable that the worst is now over. For the ordinary member the session promises to be a dull time, as it is not proposed to invite the reading and discussion of papers until after peace has been declared. The secretary of the Association, Mr. F. R. Verbury, to whom much of the credit of carrying on under difficulties is due, has been summoned for active service, but the Council are appealing to the Tribunal on the ground that his services cannot be dispensed with.

The forthcoming exhibition of the Arts and Crafts Society, to be opened in the Galleries of the Royal Academy in the first week of October, promises to be of unusual interest. The rooms at Burlington House are to be transformed and decorated

for the occasion under the direction of Mr. H. Wilson, the President of the Society, assisted by a strong committee, and a number of artists are undertaking sections of the work in accordance with the general scheme that has been devised. The exhibits will be arranged under the classes of ecclesiastical, municipal, decorative, university, and domestic art. To meet the preliminary working expenses of fitting up the gallery a guarantee fund has been arranged and has already met with a liberal response. The exhibition is to be open to all British craftsmen, whether members of the Society or not, and works will be received and exhibited under conditions similar to those of the summer exhibitions of the Royal Academy. Already a large number of promises of exhibits of handicrafts have been received, and from these a careful selection will be made by the joint committee, the aim being to gather together a display much in advance of those formerly shown year by year in the dismal promenade gallery of the Albert Hall. The hon. secretary is Mr. Edward S. Prior, A.R.A., 1, Hare Court, Temple, E.C.

It is stated that the revenue authorities have decided to modify their original intention to levy the amusement tax of 2d. in the shilling on tickets of admission to the Royal Agricultural Society's Show, which is being held at Manchester this week. It was pointed out that the show is part of a work of prime national importance—never of such importance as at the present moment—and did not come within the category of amusements. It is understood, however, that the tax will be levied on the "side shows," such as the grand stand, concert hall, etc. That is reasonable, but that the exhibition should have been taxed would have been as stupid and unjust as is the taxing of educational art exhibitions against which we protested when the tax was announced, but with regard to which we regret no reconsideration seems to have been as yet vouchsafed.

Bad as our main roads are becoming, it is but too evident that the worst is yet to come, and, unless we are pessimistic, is nearly upon us. Backed by a wealthy and powerful organisation, the Rural road-

train, which some have seen in France, has made its debut here at last, and it may not be long ere ten thousand of these cumbersome and elongated sets, each hauling its fifty-ton load, will be traversing the country, to the despair of the road surveyors, and ratepayers, and the embarrassment of all other traffic. We have no sympathy with the ordinary road-hog, and are not disposed to pity him much if he is driven off by his new competitor. But the decent motor-car owner or light-van-owning tradesman will surely have a legitimate cause of grievance when he reflects that he is paying threepence on every imperial gallon of petrol he burns towards the upkeep of the roads, while the noisy giant who is beginning to monopolise them also gets off with threepence. On the woes of the roadside resident it is little use to enlarge. He has almost become used to be bullied into the belief that roads are made for traffic—of any sort; and that if he disbelieves it his one remedy is to efface himself and give place to the behemoths of the track which mark their progress by the ruin of the roads they misuse and the desolation of all that abuts thereon.

A photograph of an interior with the men working, in natural poses, is extremely difficult to secure. In the first place, it is generally necessary to give long exposures or to use a flashlight if an instantaneous exposure is made. In the second place, it is hard to get workmen to act naturally when a photographer is around. Their impulse is to face the camera and strike an attitude. This defeats the object of taking a shop interior, especially when it is desired to show processes. It is sometimes necessary for the photographer to resort to a trick in order to get the result wanted. He apparently takes the picture, and then tells the men to resume their places, whereupon he makes the exposure and secures the natural effect desired—perhaps. If workmen would consider what the object generally is when a photographer appears in their midst, they would concentrate on their work the same as usual, and not pose. If they gave proper consideration to the matter, they would realise how ridiculous it is for men in working clothes, in the grimy atmosphere of a shop, to have their pictures taken at attention. Let the workman attend to his job, and the photographer will be all the better pleased, and he himself will be better pleased when he sees the photograph; it will appear more to his credit if he seems to be working as usual, and not standing with the expression on his face: "Here I am; ain't I handsome?"

A twenty-story hotel, costing \$9,000,000, will be erected opposite the Pennsylvania Station, New York City. When completed the hotel will contain 2,200 rooms. It will be located on Seventh Avenue, between 32nd and 33rd Streets. A subway station connecting with the hotel basement will give access to the new subway system, and a tunnel will connect it with the Pennsylvania Station opposite. It will be possible for a guest to go to

any part of the city reached by the subway system, or to take trains for the West, South, North or New England without going from under cover. The local and long-distance transportation facilities are nearly ideal. This is in refreshing contrast to the time—not so long ago—when each city and town tried to make it difficult for a traveller to pass through on his journey without spending much money for lodging, food and local transportation. The modern theory of efficiency is directly opposed to the old obstructionist's idea. A great city like New York gains by facilitating the transaction of business. The traveller who can go about easily and cheaply and who is properly taken care of while he is within the "city's gates" will, in the end, be more profitable than he who is cheated and tricked, delayed in the transaction of his business, and met at every turn by demands for "bakshesh," as he is too often here in London.

No current item of news has had wider circulation in the American architectural Press, or received more comment, than the recent letting of a contract on an \$80,000 bridge to a man who bid "\$500 lower than the lowest bid." The contract was awarded by the City Council of Iowa City, Ia., to William Harrabin, of that city. The lowest bid was submitted by the Widell Construction Co., of Mankato, Minn., which bid \$77,900, and the award was contested by Former Governor Eberhard of Minnesota, secretary of that company; but the City Council stood pat. The legality of the bid is being discussed from coast to coast. Leaving aside all question of legality, the "Iowa City plan" of bidding can hardly have any permanent recognition, even though the contract in question is carried out. That one contractor can continue to secure work on his competitors' estimates does not appeal to logic, nor is it reasonable to suppose that builders will continue to employ estimators when their efforts are only used to play into the hands of their competitors who spend neither time nor trouble on this detail. The next step beyond that is chaos in contracting.

The following is an extract from the recent judgment of the Court of Review of the Dominion of Canada in the action brought by the Association of Architects of Quebec Province against a Mr. Garipey, who was practising as an architect, but was not a member of the Association:—"To justify plaintiffs' conclusions we would have to rely upon inference and implication to agree to the proposition that the provincial architects' association is a close corporation—that the charter under which this action is brought gives the Association of Architects the exclusive right for their members to practise as architects in this province and to bar out all others who do not join their ranks. We cannot subscribe to such doctrine. The privileges afforded the association are stated in the terms of the statute—neither more nor less. By inference, we are now asked to decide that because the Bar,

the physicians, notaries, surveyors and certain other professions have obtained exclusive charters wherein the prohibitive enactment is expressed in clear and unmistakable terms, the Legislature intended to do the same thing for the profession of architects, although the language used in the Architects' Act presents serious points of difference from the simple, direct and plain phraseology of these other Acts. If such was the intention, why not express it? The fact that it was not so expressed is apt to lead one to the presumption that the law-givers did not intend to grant exclusive rights here. Coupled with the further circumstance that the architects when applying for and obtaining their charter, as well as the legislators upon granting it, had before their eyes and in their minds the charters already granted to the said other corporate entities, what conclusion are we to draw when we see them departing from well-known, symmetrically drafted, bomb-proof models, to ask for and receive a version so at variance therefrom?"

#### THE FUTURE OF PORTLAND CEMENT.

In a valuable paper by Mr. George A. Rankin, A.B., of the Geophysical Laboratory, Carnegie Institute of Washington, presented at a meeting of the Section of Physics and Chemistry of the Franklin Institute on March 2 last, and fully reported in the *Journal of the Institute* for the current month, the author dwells on the remarkable development of the manufacture of cement in the United States. Forty years ago its use was limited, and it was manufactured only on a small scale; at the present time its use is so widespread that in 1915 it required over 90,000,000 barrels, costing over \$125,000,000, to supply the demand in the United States alone. This tremendous increase in production has been due to the increased use of Portland cement as a structural material, especially in concrete. The uses for concrete are many. It is used for the construction of sidewalks, roads, houses, dams, bridges, tunnels, forts, etc. In general, it may be said, therefore, that concrete is a substitute for stone. In some respects concrete is superior to stone as a building material, but under many conditions it is not so durable as the best building stone. One often sees a cement sidewalk which has disintegrated or hears of a concrete dam or bridge that is gradually going to pieces. There is reason to believe, however, that it may be possible to produce a cement which will yield a concrete of much greater durability than the Portland cement now made. Indeed, as the demand for Portland cement has increased, and as the requirements of engineers have called for material of better quality, the manufacturers have been able to meet these demands and to improve continuously the quality of their product. This continuous advancement has been brought about almost entirely by improvements in the mechanical appliances and methods of the industry. In view of the fact that such progress has been possible under such circumstances, it would seem not unreasonable to look forward to further improvement in cement, now that its constitution has been definitely ascertained.

Mr. Rankin reviews at some length the whole history of Portland cement from the date of Smeaton's researches in 1756, and his discovery that a clayey limestone,



found in Cornwall, burnt into hydraulic lime, and mixed with pozzolana, well suited his requirements for the Eddystone lighthouse. The fact that pozzolana was not found in England set others making artificial Roman cements, and it was from one of these that Joseph Aspdin made and patented his Portland cement in 1824, giving it the name of Portland from its resemblance to that well-known building stone. This cement was made by heating together an intimate mixture of limestone and clay to a temperature sufficient to expel the carbon dioxide. The process thus described is incapable of producing a cement such as is now known as Portland cement, the temperature of burning not being sufficiently high for the formation of the essential constituent, tricalcic silicate. It was not long, however, before this defect became obvious, the value of burning to a temperature of incipient fusion being discovered in 1825. While the superiority of the cement thus made by partial fusion of the raw materials was soon recognised, the knowledge of why fusion is essential has but recently been discovered. We now know that it is tricalcic silicate which imparts to Portland cement its most valuable properties, and that it requires extremely high temperatures in order that this compound be formed from limestone and clay. In spite of this lack of scientific knowledge during the early stages of the development of the Portland cement industry in England, the proper proportions of limestone and clay to be used were discovered by burning various mixtures and testing the physical properties of the cements thus obtained.

The first scientific knowledge of the chemistry of cements resulted from various investigations carried on in France. Of these early researches, the most important are undoubtedly those of M. Vicat, who undertook to straighten out the chaos of opinions and opposing facts regarding cements which existed at the time he started his work in 1812. Briefly stated, Vicat made an attempt to determine: the relation between the quality of hydraulic lime and cement and the chemical composition of the stone whence they are derived; the nature of the chemical compounds formed during burning; and the changes which take place when the cement is mixed with water and hardens. While he did not entirely accomplish his purpose, Vicat did evolve some very interesting theories as to the hardening of calcareous mortar and cements.

While Vicat, in France, was working out these theories, here in England, with little or no theoretical knowledge, a process was discovered for the production of an hydraulic cement far superior to any then produced in France. This discovery yielded a cement so far superior to any previously known that apparently the idea became fixed—and to some extent still prevails—that there is no possibility of producing a still better cement. It would appear that this minimised to some extent the recognition of the value of theoretical cement investigation, since but little of value was undertaken for some time after Vicat's investigations. In spite of this fact, however, that but little has been known of the theoretical possibilities involved in the chemistry of the process, the many mechanical improvements have made possible the production of a better and more uniform product than was first made.

Mr. Rankin claims that the best Portland cement to-day is made in America, and is due still to improvements in the mechanical appliances of the industry which have been developed largely and which have gradually increased the percentage of tricalcic silicate in cement by

affording more favourable conditions for the formation of this compound.

Portland cement clinker is the result of chemical combination of the three oxides, lime, alumina, silica; but, besides these three—which are the essential components—two others, namely, magnesia and ferric oxide, always occur to some extent in commercial cement. The average of a large number of chemical analyses of American-made Portland cement is:—

CaO	62.5 per cent.	Fe <sub>2</sub> O <sub>3</sub>	2.5 per cent.
Al <sub>2</sub> O <sub>3</sub>	7.5 per cent.	MgO	2.5 per cent.
SiO <sub>2</sub>	22.0 per cent.	SO <sub>3</sub>	1.5 per cent.

From this it is evident that more than 90 per cent. of an average Portland cement consists of the three oxides, CaO, Al<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>; one would expect, therefore, that its properties are due mainly to the presence of the above three components, and that the relatively small admixture of the other oxides exerts at most a wholly secondary influence. Indeed, it has been shown that good Portland cement can be made from the three pure oxides, lime, alumina, and silica, in the proper proportions. Now, ordinary chemical methods enable us to ascertain the aggregate proportion of each oxide present, but they yield us no information as to the manner in which these oxides are combined with one another—in other words, as to the substances which actually are present in the clinker and are responsible for its characteristic properties. The determination of this question is very important, for this reason; that, until we know what these substances actually are, we cannot hope to improve the quality in any desired direction, except by cut-and-try methods; and it is generally recognised that such empirical methods are much less certain, and take a vastly longer time to reach the goal, than methods based on a real knowledge of the factors in the problem. The determination of this question has been the object of a very large number of investigations; but the experimental basis of most of this work has been altogether insufficient to decide the several questions at issue. There has been in general a failure to realise the fact that a system so complicated as this can be unravelled only by proceeding systematically, using as a guide the principle known as the phase rule and establishing definite criteria for the recognition of the several substances which occur.

Cement clinker is a mixture of substances of very similar properties, and is, moreover, exceedingly fine grained, as a consequence of which it is a matter of some difficulty to make quantitative determinations of the constituents; but this difficulty can be surmounted by studying separately each of the presumable constituents of the clinker and determining definite values of certain properties which serve to characterise it and to distinguish it from other possible constituents. Accordingly the first problem is to isolate and determine all the possible compounds of lime, alumina, and silica which we may expect to find in Portland cement clinker, to establish their relations at high temperatures, and to ascertain their optical characteristics which constitute the most convenient and satisfactory criterion of the identity of the several substances.

These characteristic properties of the several solid substances, containing only CaO, Al<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, which are likely to occur in Portland cement have been determined at the Geophysical Laboratory of the Carnegie Institution in Washington in the course of a systematic investigation of all compounds formed when any mixture of these oxides is heated to a high temperature. In American-made Portland cements the relative proportions of these oxides vary only between comparatively narrow limits: CaO, 60 to 64;

Al<sub>2</sub>O<sub>3</sub>, 5 to 9; SiO<sub>2</sub>, 19 to 25; in other words, in considering this special problem we have to deal with a very restricted portion of the field of the whole system CaO—Al<sub>2</sub>O<sub>3</sub>—SiO<sub>2</sub>.

In order to work out this system completely it proved necessary to investigate about 1,000 different mixtures of these three oxides and to make about 7,000 heat treatments and microscopical examinations of the resultant products. Each such mixture, which was always made up of specially pure materials, was alternately fused and ground to a fine powder, the fusions being made in a platinum crucible to avoid contamination, in order to obtain a thoroughly combined product. Each of these products was heated in an electric furnace, the temperature of which was carefully controlled and measured, until all changes had ceased, when it was quickly chilled; and the resultant material was subjected to a complete optical study. This procedure, which was carried out systematically, enables one to determine the crystalline phases present at temperatures ranging from that at which melting begins to that at which the charge is completely melted; and thus to ascertain the melting temperature and optical properties of all compounds of lime, alumina, and silica which form when any mixture of these three oxides is heated.

Mr. Rankin devotes several pages to a description and illustration of the apparatus employed in the investigation, and then proceeds to consider the results obtained. Having shown that the components of Portland cement are CaO, Al<sub>2</sub>O<sub>3</sub>, and SiO<sub>2</sub>, and that the constituent substances are definite compounds of these oxides, he goes on to consider the percentage of these compounds in the clinker. For example, he takes the average grey cement. If the clinker for this cement has been perfectly burned, it will consist of about 36 per cent. 3CaO.SiO<sub>2</sub>, 33 per cent. 2CaO.SiO<sub>2</sub>, 21 per cent. 3CaO.Al<sub>2</sub>O<sub>3</sub>, and 10 per cent. of the minor constituents.

In the actual manufacture of Portland cement, however, the clinker is not always perfectly burned; that is, the raw materials are not always ground fine enough or heated to a sufficiently high temperature so that the chemical reactions are completed. The proportions of the constituents in commercial cement will then be somewhat different from those given. With our present knowledge of the nature of the chemical reactions, however, it is possible to state which of the constituents will not be completely formed. It was found that 3CaO.SiO<sub>2</sub> is the last constituent to form completely, and that this compound is formed by combination of CaO with the compound 2CaO.SiO<sub>2</sub>. It is evident, therefore, that when commercial clinker is not perfectly burned there is less 3CaO.SiO<sub>2</sub>, and more 2CaO.SiO<sub>2</sub>,\* and CaO will be present as an individual constituent. In the example given there will be less than 36 per cent. 3CaO.SiO<sub>2</sub>, more than 33 per cent. 2CaO.SiO<sub>2</sub>, and there will be a certain percentage of free CaO. The exact percentages will, of course, depend upon how near to completion the reaction, CaO+2CaO.SiO<sub>2</sub>=3CaO.SiO<sub>2</sub>, has been carried.

That the manufacture of good Portland cement necessitates that this reaction be

\* The "dusting," commonly observed in under-burned clinker when cooled, is due to the 10 per cent. expansion which accompanies this change of 3CaO.SiO<sub>2</sub> (stable at the clinking temperature) to 2CaO.SiO<sub>2</sub>, the crystalline form of di-calcic silicate stable at temperatures below 600°C. This dusting ordinarily takes place only when the clinker contains a very high percentage of 3CaO.SiO<sub>2</sub>, and does not take place when the clinker has been well burned. This 3 form of di-calcic silicate is, however, always present in a considerable quantity in well-burned clinker, so that the di-calcic silicate in cement clinker when cooled is in a state of unstable equilibrium.

carried practically to completion is evident if we consider certain facts in regard to the influence of lime on the physical properties of Portland cement. Practical experience has shown that cements containing much free lime are unsound, and that concrete made from them will in time disintegrate. This is due to the expansion of free or uncombined lime when it reacts with water to form calcium hydrate. If, however, the lime in cement is all combined, they are sound and of good strength. The importance of the reaction  $\text{CaO} + 2\text{CaO} \cdot \text{SiO}_2 = 3\text{CaO} \cdot \text{SiO}_2$  is, therefore, apparent, since this reaction must go practically to completion in order that a sound cement may be produced. It has long been recognised that anything which will promote the combination of lime during burning will promote soundness in cement, and that the greater the percentage of combined lime the greater the strength of the cement.

The average lime content of cement today is about 62.5 per cent., which is largely combined as  $3\text{CaO} \cdot \text{SiO}_2$ ,  $2\text{CaO} \cdot \text{SiO}_2$ , and  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ . If the percentage of  $\text{CaO}$  were increased it would tend to combine with the  $2\text{CaO} \cdot \text{SiO}_2$  to form more  $3\text{CaO} \cdot \text{SiO}_2$ , and would so combine if the time of burning were long enough and the temperature sufficiently high. "Since practical experience has shown that increased percentage of lime increases both the percentage of  $3\text{CaO} \cdot \text{SiO}_2$  and the strength of cements, it may be inferred that the strength of cements is largely due to the compound  $3\text{CaO} \cdot \text{SiO}_2$ . If this is true, it is desirable that Portland cement should contain as high a percentage of this compound as is possible. An average Portland cement contains about 30 to 35 per cent. of this constituent. That Portland cement contains such a small amount of  $3\text{CaO} \cdot \text{SiO}_2$  is due partly to the fact that this constituent is formed with great difficulty and also to the fact that about 35 per cent. is the maximum yield which could be obtained from raw materials having the same  $\text{CaO}$ ,  $\text{Al}_2\text{O}_3$ , and  $\text{SiO}_2$  composition as is now used.

Before taking up, however, a discussion of the probable value of  $3\text{CaO} \cdot \text{SiO}_2$  as a cementing material and the possibility of increasing its percentage in Portland cement, let us consider what is known as to the cementing value of the constituents of Portland cement, taking up first the changes which take place when Portland cement is mixed with water and hardens.

When Portland cement is finely pulverised and mixed with water a hard mass is formed by chemical action between the water and the constituents of the cement. The first change undergone by the cement mortar in passing from a plastic to a solid state is called "setting," which requires not over a few hours. After the mortar has set there is a gradual increase in the strength of the mass, and the cement is said to "harden." It sometimes requires a year's time for a cement to acquire its full strength.

While there is still much to be learned as to the chemistry of the hardening of Portland cement, sufficient data on the hydration of the individual major constituents have been obtained to enable us to account for this gradual hardening and increase in strength and to indicate the relative value of these constituents as cementing materials.

Let us now consider the hydration of the three major constituents,  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ ,  $3\text{CaO} \cdot \text{SiO}_2$ , and  $2\text{CaO} \cdot \text{SiO}_2$ , in the order named. When pure  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$  is mixed with water an amorphous hydrated material is first formed. This material sets and hardens very rapidly. The compound  $3\text{CaO} \cdot \text{SiO}_2$  when mixed with water, also sets and hardens rather rapidly. In

the case of this compound, as in the case for  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ , the setting and hardening are due to the formation of an amorphous hydrated material on the individual grains, which are thus cemented together. The extent of the hydration or the percentage of amorphous material which each gram will yield depends upon the percentage of water used and the time. With a given percentage of water the amount of amorphous material formed from the compound  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$  in a given time is much greater than for the compound  $3\text{CaO} \cdot \text{SiO}_2$ ; that is, the compound  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$  reacts with water much more rapidly than the  $3\text{CaO} \cdot \text{SiO}_2$ . The compound  $2\text{CaO} \cdot \text{SiO}_2$  reacts very slowly with water, and it is only after a long period of time that sufficient amorphous hydrated material is formed to cement together the grains of this compound and so form a hard mass.

The amorphous hydrated material formed by the action of water on the constituents of cement does in time, no doubt, crystallise to some extent. From the data available it would appear that the crystals formed are calcium hydrate and some crystalline hydrate derived from  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ . Apparently no crystalline hydrate of the calcium silicates is formed.

From this brief description of the action of water on the constituents of Portland cement it will be seen that the setting and hardening of Portland cement involve the formation of an amorphous hydrated material which subsequently partially crystallises; that the initial set is probably due to the hydration of  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ ; that the hardness and cohesive strength at first are due to the cementing action of the amorphous material produced by the hydration of this aluminates and of the  $3\text{CaO} \cdot \text{SiO}_2$ ; and that the gradual increase in strength is due to further hydration of these two compounds, together with the hydration of the  $2\text{CaO} \cdot \text{SiO}_2$ .

Of the three compounds which thus take part in the setting and hardening of Portland cement, the  $3\text{CaO} \cdot \text{SiO}_2$  appears the best cementing constituent; that is, this compound is the only one of the three which when mixed with water will set and harden within a reasonable time to form a mass which in hardness and strength is comparable to Portland cement. The compound  $2\text{CaO} \cdot \text{SiO}_2$  requires too long a time to set and harden in order to be in itself a valuable cementing material. The compound  $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ , while it sets and hardens rapidly, is rather soluble in water and is not particularly durable or strong.

From this it would appear that the compound tricalcic silicate is the essential constituent of Portland cement; consequently the higher its percentage the better the cement. Vicat, it will be remembered, seemed to believe that the lime in cement mortar should be in a state of chemical combination, and that it were best that it should be so combined with gelatinous silica. When tricalcic silicate is mixed with water to form a mortar a gelatinous material is formed which is composed of hydrous lime and silica. Whether the lime and silica continue to be chemically combined or whether the gelatinous material is colloidal is still a matter of some uncertainty, although it would appear that this material is colloidal. The similarity between Vicat's theoretical cement and tricalcic silicate is thus apparent. This, which tends to prove that gelatinous silica is the most essential constituent of a cement mortar, is somewhat speculative. That such speculation is desirable is due to the fact that by formulating advance theories as to the probable outcome of an investigation one may sooner attain the end. It is essen-

tial, however, that theory and established fact be not confused.

With this in mind, let us now consider certain possibilities which might increase the percentage of gelatinous silica in cement mortars. We know at the start in such an investigation that tricalcic silicate is probably the only compound containing silica in combination in such a manner that it is readily released to form a thin coating of gelatinous silica when mixed with water to form a mortar. Therefore, until some other compound is discovered in which the silica is combined in such a way that it is more readily available in the gelatinous state, the best way to increase its percentage in cement mortars is to increase the percentage of tricalcic silicate in cement clinker. Unfortunately this is difficult, although there are several very interesting possibilities.

Pure tricalcic silicate is formed by combination of lime and silica only with the greatest difficulty, the temperature of burning required,  $1700^\circ \text{C}$ ., being too high for industrial practice. In order that this compound form readily and at a sufficiently low temperature so as to become a commercial possibility it is necessary that some substance or substances other than lime and silica be present during the burning, these substances to be of such a nature that a low-melting, rather fluid flux is formed, so as to facilitate the combination of lime and silica to form tricalcic silicate. At present this flux is to a large extent furnished by the low-melting calcium aluminates in the clinker.

Portland cement contains about 30 to 35 per cent. tricalcic silicate, a proportion which closely approaches the maximum possible yield with the present percentage of flux; in other words, if the components are in the proportions of an average Portland cement. It has also been shown that an increase in the lime content of an average cement will increase the percentage of  $3\text{CaO} \cdot \text{SiO}_2$  if the conditions of burning are such that the reaction  $\text{CaO} + 2\text{CaO} \cdot \text{SiO}_2 = 3\text{CaO} \cdot \text{SiO}_2$  goes to completion. This, however, necessitates finer grinding of the raw materials, as well as burning for a longer time and at an increased temperature, factors which materially affect the cost of production. Now the data discussed above were obtained by applying the results obtained by an investigation of the equilibrium relations found to exist in the system  $\text{CaO}-\text{Al}_2\text{O}_3-\text{SiO}_2$  to the actual manufacture of Portland cement; but this by no means implies that in presence of other components the conditions required for the production of an adequate amount of flux should not be more favourable and economical. In other words, the study of other systems may establish the economic possibility of producing a cement containing a high percentage of tricalcic silicate. For example, if some substance were substituted for the component  $\text{Al}_2\text{O}_3$  in the system  $\text{CaO}-\text{Al}_2\text{O}_3-\text{SiO}_2$ , the study of the equilibrium relations found to exist in this new system would enable one to determine whether or not it would be economically possible to produce a cement containing a high percentage of  $3\text{CaO} \cdot \text{SiO}_2$  from raw materials of which the components are  $\text{CaO}$ ,  $\text{SiO}_2$ , and this third substance. Thus, if  $\text{Fe}_2\text{O}_3$  were substituted for  $\text{Al}_2\text{O}_3$ , we could, from the study of the system  $\text{CaO}-\text{Fe}_2\text{O}_3-\text{SiO}_2$ , ascertain the fineness of the raw material and the time and temperature of burning necessary to secure a clinker containing the highest percentage of  $3\text{CaO} \cdot \text{SiO}_2$ , which could be economically produced from raw materials of which the major components are  $\text{CaO}$ ,  $\text{Fe}_2\text{O}_3$ , and  $\text{SiO}_2$ . This would require that one determine the nature of all compounds formed in mixtures of these three oxides



which when burned contain  $3\text{CaO} \cdot \text{SiO}_2$ , and that we establish the identity, melting temperature, and rate of formation of  $3\text{CaO} \cdot \text{SiO}_2$  in such mixtures. Instead of substituting a single substance, it would undoubtedly be more desirable to substitute a number of different substances, since the presence of several produces a lower melting flux and thus makes possible the formation of  $3\text{CaO} \cdot \text{SiO}_2$  at a lower temperature. By proceeding in this way to determine systematically the various mixtures of substances which when burned give high percentages of  $3\text{CaO} \cdot \text{SiO}_2$ , it would not seem at all improbable that we may discover some mixture which could be economically manufactured and which would result in the production of a cement far superior to the Portland cement now made.

In conclusion, let us recapitulate the main points contained in this paper. The value of Portland cement depends upon the fact that when finely powdered and mixed with water it forms a hard mass; and the strength and permanence of this mass depend upon the constituents of the cement. The major constituents are tricalcic silicate, dicalcic silicate, and tricalcic aluminate. Of these constituents, the compound tricalcic silicate is the one which hardens and develops the greatest strength within a reasonable time. This most important constituent, which is the one formed with the greatest difficulty, makes up only about 30 to 35 per cent. of an average normal Portland cement. It may be said, therefore, that the essential process for the manufacture of Portland cement is the formation of this compound, and that any improvement in this process yielding an increased percentage of tricalcic silicate will increase the cementing value of Portland cement. In order to determine the most economical process for producing tricalcic silicate in the highest percentages, it will be necessary to study the rate of formation of this compound in a series of mixtures of various substances; this, in turn, necessitates the determination of the equilibrium relations of tricalcic silicate at high temperatures in such mixtures. Such a procedure, insists Mr. Rankin, will lead sooner to the discovery of the optimum composition in various cases and for various purposes than the empirical, cut-and-try methods which hitherto have been the only methods tried.

The partnership heretofore subsisting between W. H. Swann, F. O. Wright, and H. C. Wright, architects and surveyors, at Brougham Chambers, Wheeler Gate, Nottingham, under the style of Swann and Wright, has been dissolved, so far as regards F. O. Wright.

A Local Government Board inquiry will be held on Wednesday, July 19, at Romiley, by Mr. G. L. Pepler, into an application by the urban district council for Bredbury and Romiley for authority to prepare town-planning schemes with reference to an area comprising the urban district of Bredbury and Romiley, and an area within the urban district of Comp-stall.

In consequence of the shortage of labour in the Black Country fire-brick industry and the demand for a greatly-increased output, an appeal has been made to the Minister of Munitions to have the trade scheduled in the list of certified industries. A conference has been held with the Minister of Munitions, and the question of badging those workers essential to the production of fire-bricks is being considered.

Recently the association known as "Women's Service" has been asked to furnish a dozen timber-fellers to cut down trees with an axe and carry logs. It has not been possible to find women muscular enough for the work, though a few were willing to try. An East End firm inquired for women to linewash their yards, and another request was for a woman plumber, and for ambulance attendants for the L.C.C. fire stations. One woman for whom a place was found is doing well as a carpenter.

## THE NEW PRESIDENT OF THE ARCHITECTURAL ASSOCIATION.

The *Architectural Association Journal* gives an excellent portrait of the new president of the Association, Mr. Alexander G. R. Mackenzie, F.R.I.B.A., which we are favoured with permission to reproduce. It mentions that he "comes of a family who for

tration, are placed in position; lateral rods bent to conform with the elbow of the unit are spaced at about 2-ft. 6-in. intervals in the length and wired to the longitudinal rods, the reinforcing being cast  $\frac{1}{4}$  in. from the outer surface.

End bulkheads are set in position, and over these is placed the form for the back and



MR. A. G. R. MACKENZIE, F.R.I.B.A., THE NEW PRESIDENT OF THE ARCHITECTURAL ASSOCIATION.

several generations have practised as architects in Scotland. Articled to his father, A. Marshall Mackenzie, A.R.S.A., in Aberdeen, he afterwards studied at the A.A. while in the office of Colonel Edis, one of our early presidents, travelled in Italy and Spain, and visited America, and studied in Paris.

He commenced practice as partner with his father in London in 1904. Among the more important buildings on which he has been engaged are Waldorf Hotel, Aldwych; Harsley Park, Winchester; additions to School of Tropical Medicine; Albert Dock; Memorial to King Edward, for H.M. the King, at Crathie Church, Balmoral; Swinfen Hall, Lichfield; and Australia House, Strand, for the Government of Australia, which is now approaching completion.

On the outbreak of war Mr. Mackenzie joined the London Scottish as a private and served in France and Belgium as a Battalion Scout. Severely wounded at Messines at the first battle of Ypres, in October, 1914, Mr. Mackenzie spent a year in hospital, having lost his right leg. During the last few months he has returned to work in London, walks five miles a day with an artificial leg, made by a Frenchman, of aluminium, which also enables him to climb ladders and drive his motor.

## UNIT CONCRETE STAIRWAY CONSTRUCTION.

The method of casting unit stair concrete steps, which greatly facilitated the construction of concrete stairways for subways in Boston, is described by W. B. Conant, in *Concrete*. The old method of setting up a timber form for each flight of stairs was found expensive because a considerable amount of lumber was destroyed in removing the forms. A unit system of casting each step was worked out, which proved to be from 33 to 50 per cent. cheaper.

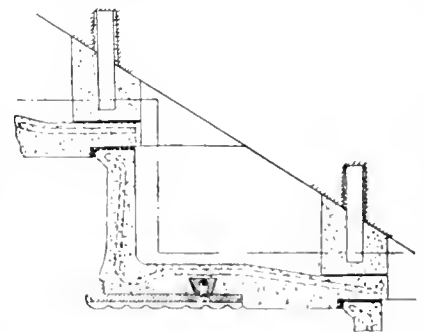
The plan of casting is as follows: A cypress form of sufficient length to carry two 8-ft. lengths is used to give the face of riser and tread; i.e., the stair is cast in an inverted position. The base plate, 7 in. wide by 3 8 in. thick, to which a corrugated "safety tread" is attached, is laid face down on the form. Reinforcement consisting of  $\frac{1}{4}$ -in. deformed bars, as indicated in the accompanying illus-

tration, are placed in position; lateral rods bent to conform with the elbow of the unit are spaced at about 2-ft. 6-in. intervals in the length and wired to the longitudinal rods, the reinforcing being cast  $\frac{1}{4}$  in. from the outer surface.

Then the form is filled with a mixture consisting of one part Newburyport sand, one part cement, one part stone dust,  $\frac{1}{4}$  in. diam. and finer, and  $\frac{1}{2}$  lb. lampblack, the materials being measured by volume. Standard stairs are of 7 in. riser and 11 in. tread, with tread  $1\frac{1}{2}$  in. thick and riser  $1\frac{1}{2}$  in. thick.

As the concrete sets, the form is carefully trowled off to a finished surface, it being necessary to get an absolutely uniform thickness.

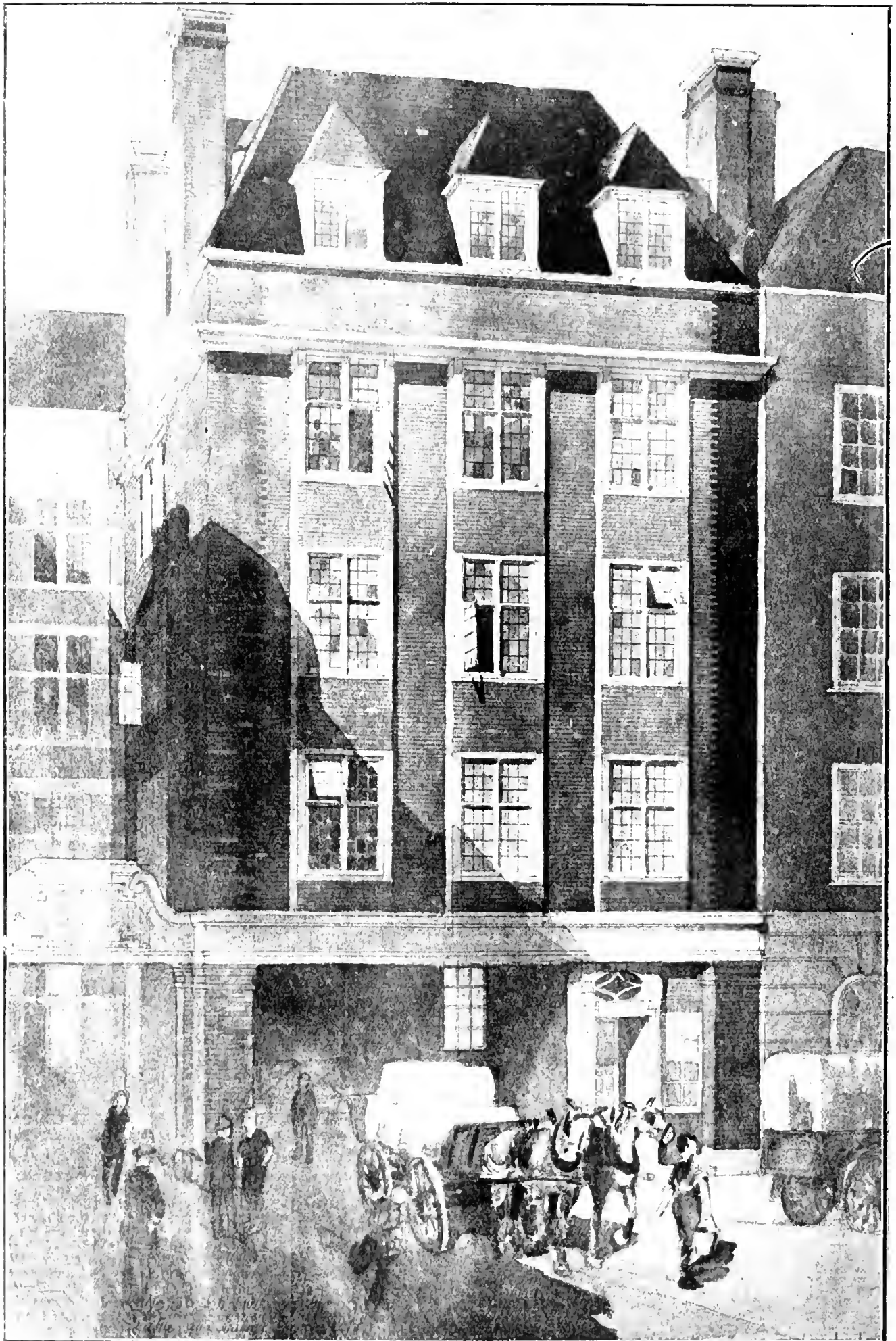
The unit is allowed about twenty-four hours to set; then the front form is removed and the riser finished. After one more day, the



A Unit System for Building Concrete Stairways.

unit is turned over and the tread finished. Each stair is allowed to cure at least one week.

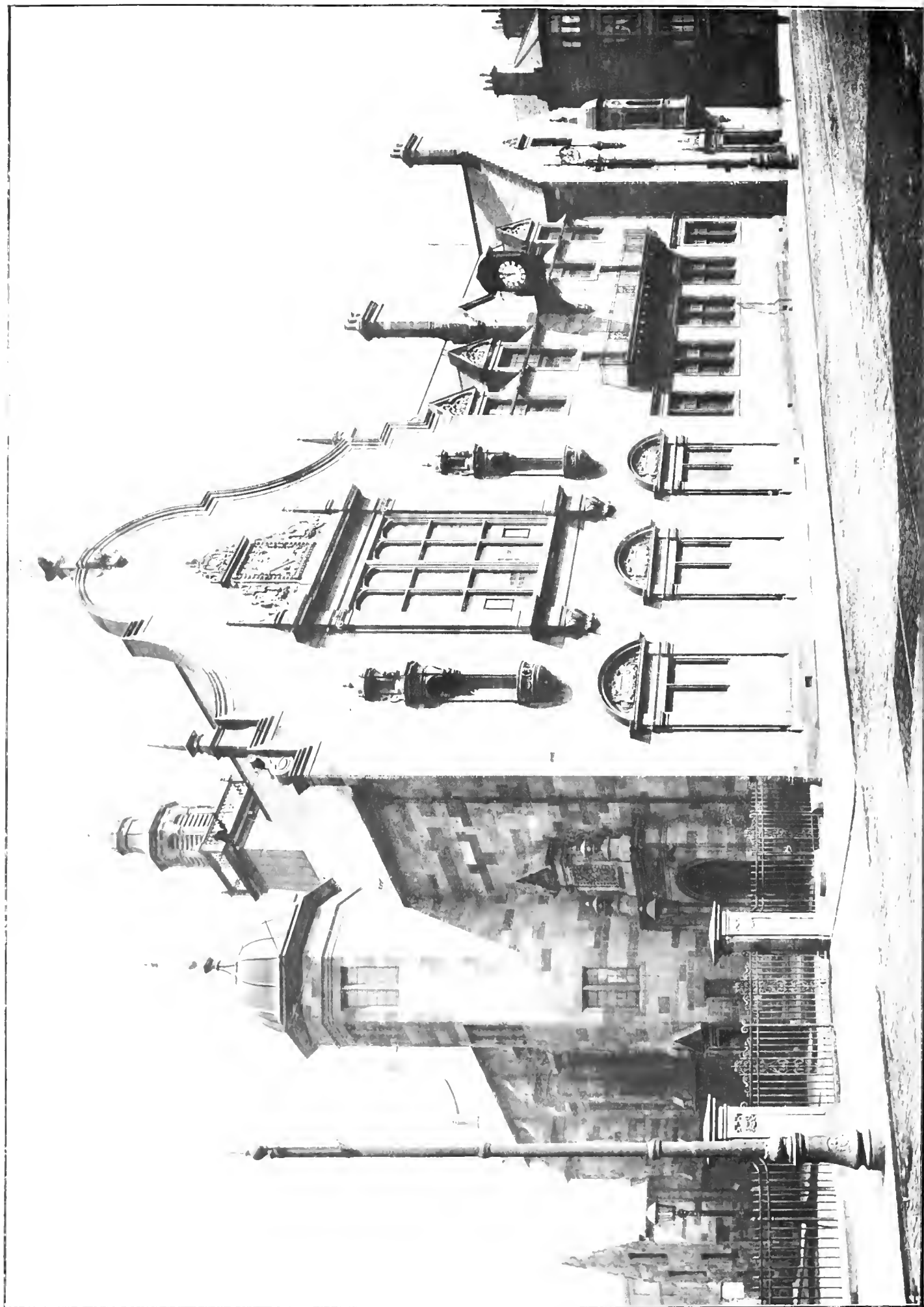
Preliminary to erecting, a flight of concrete stringers is cast against either wall, and for a wide stairway another stringer in the middle, each 8 in. to 12 in. wide. The practice is to snap a chalk line on either wall for a nosing line, and to set each unit to this, beginning with the bottom stair. Units are laid in a 1:1:1 mortar, and where conditions make it necessary the spaces under the stairs are grouted with a similar mix through holes  $1\frac{1}{2}$  in. in diameter cast in the treads by means of pipe sections. Otherwise, if the space beneath the stairs is accessible, the space is concreted from below.

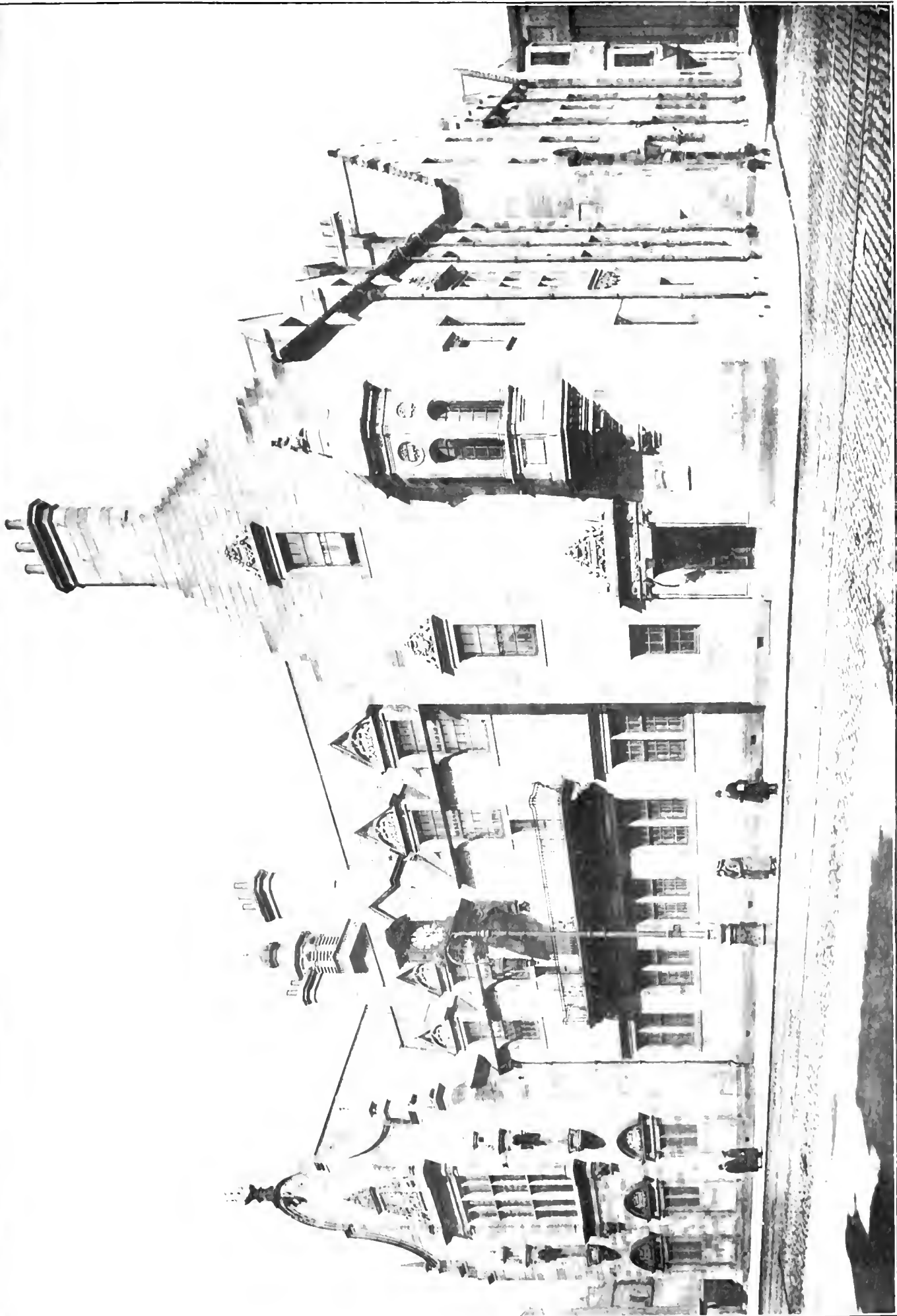


NO. 10, SALISBURY SQUARE, E.C. MESSRS. CASTLE and WARREN, Architects.



THE BUILDING NEWS, JUNE 28, 1916.



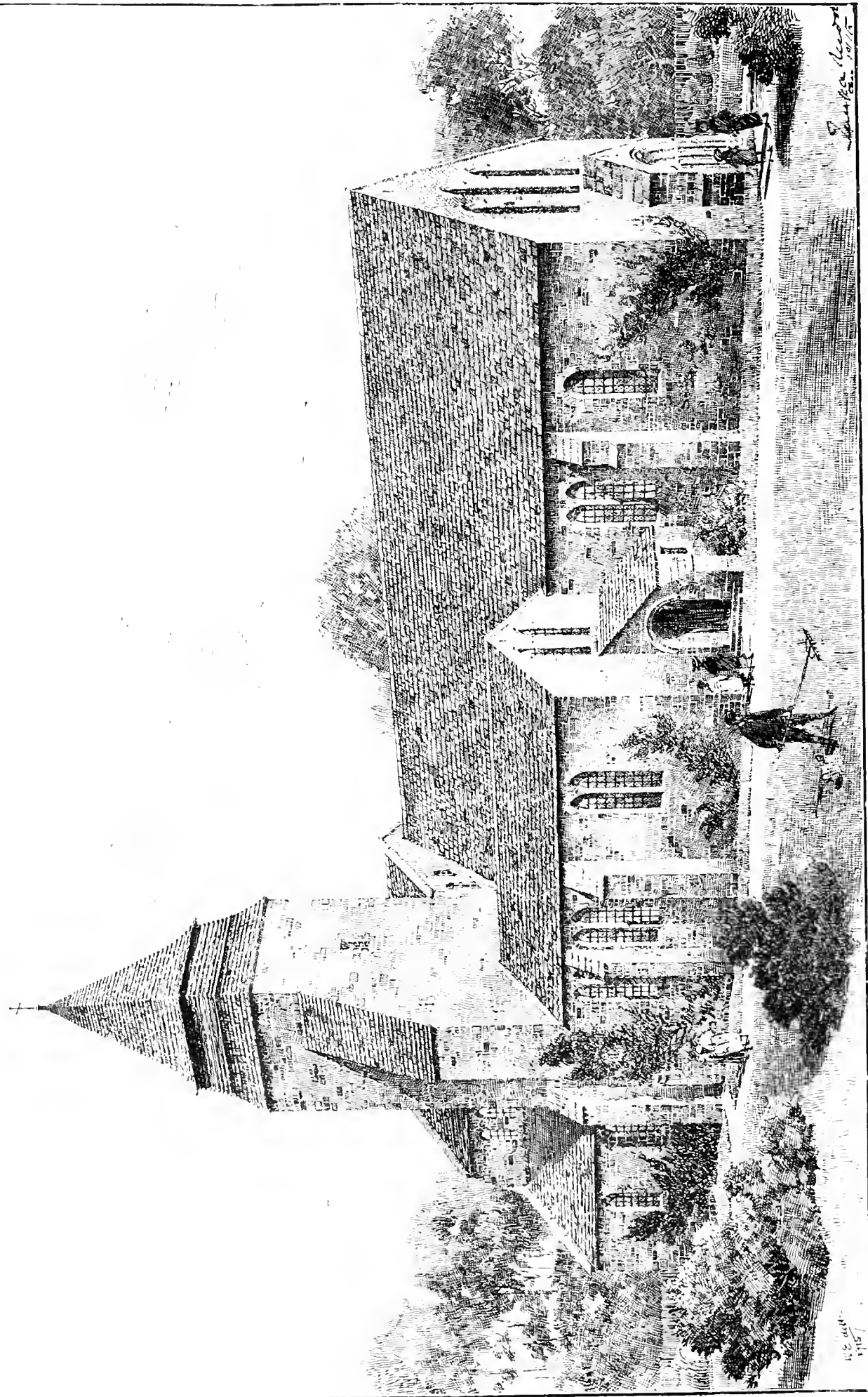


THE SIR WILLIAM PEARCE MEMORIAL INSTITUTE, GOVAN, N.B.  
SIR R. ROBERT ANDERSON, LL.D., F.R.S.E., F.R.I.B.A., Royal Gold Medallist 1909, Architect.

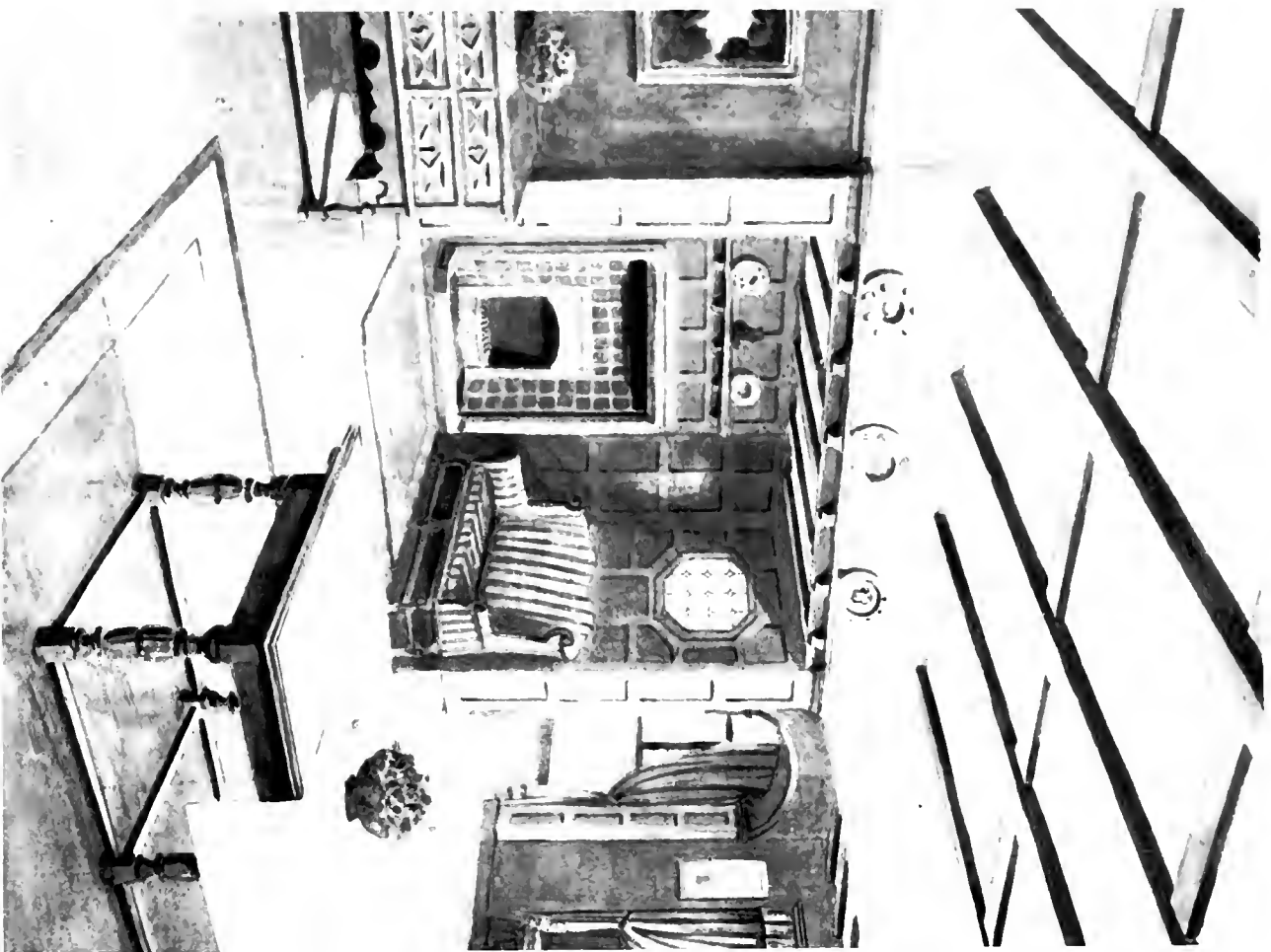








NEW CHURCH OF ST. LUKE, WALSALL.—MR. TEMPLE MOORE, F.R.I.B.A., Architect.

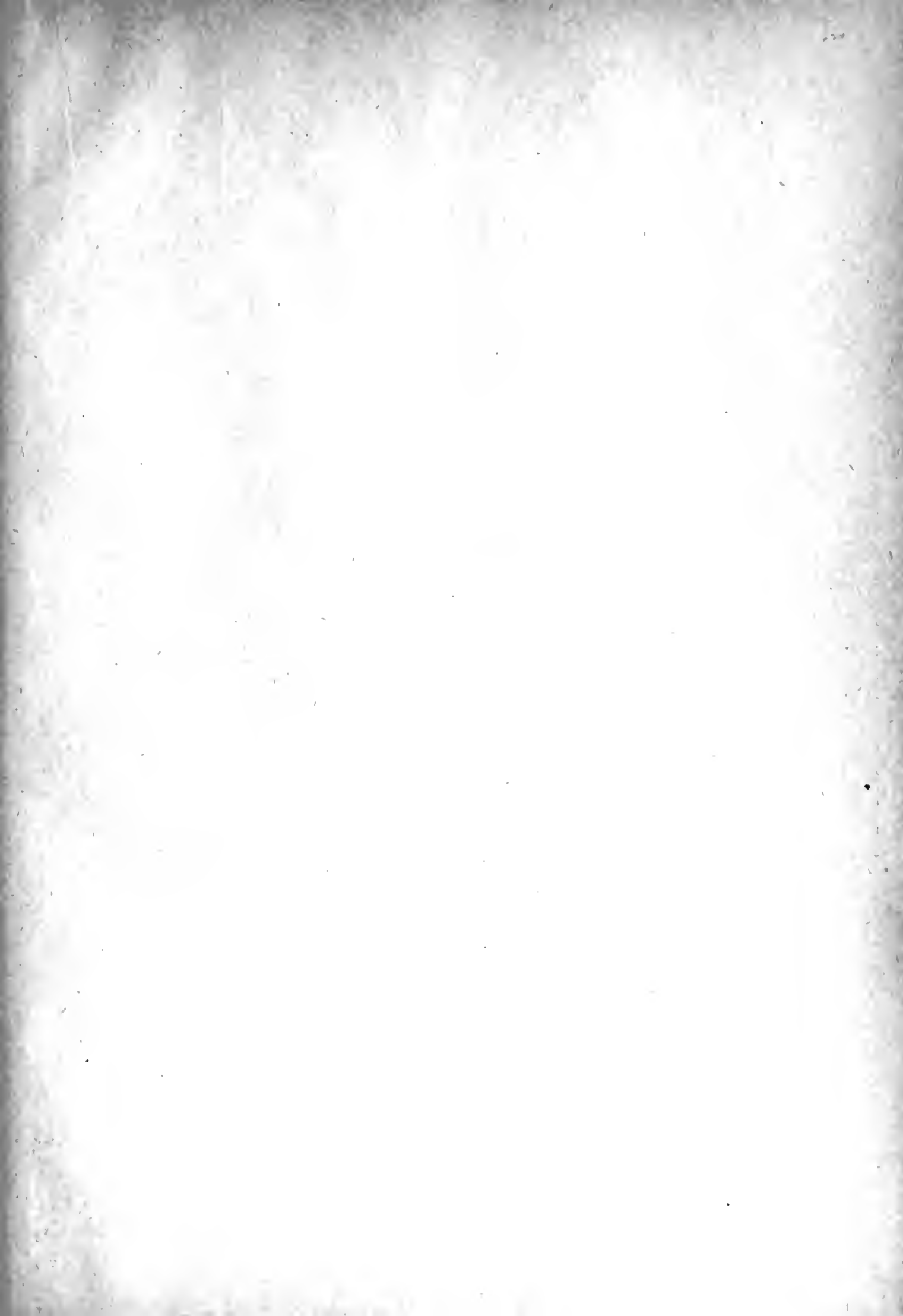


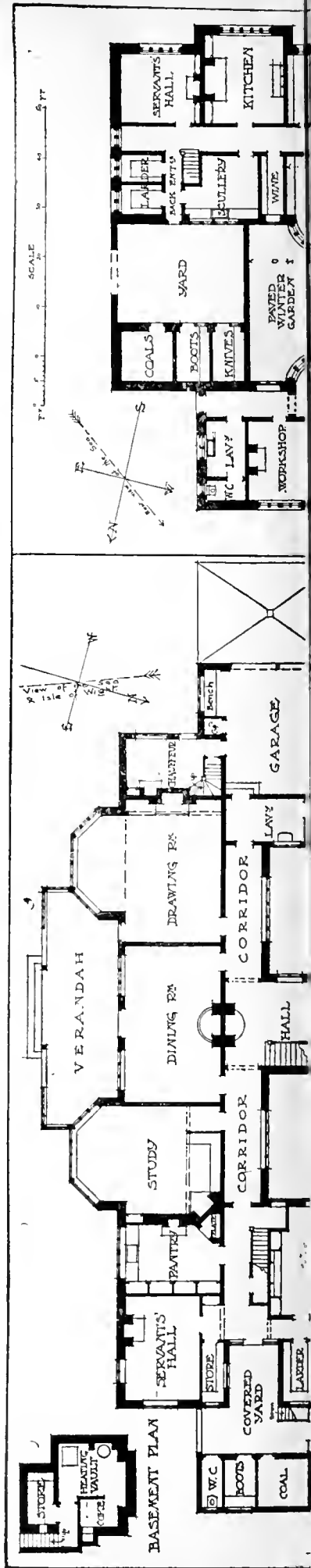
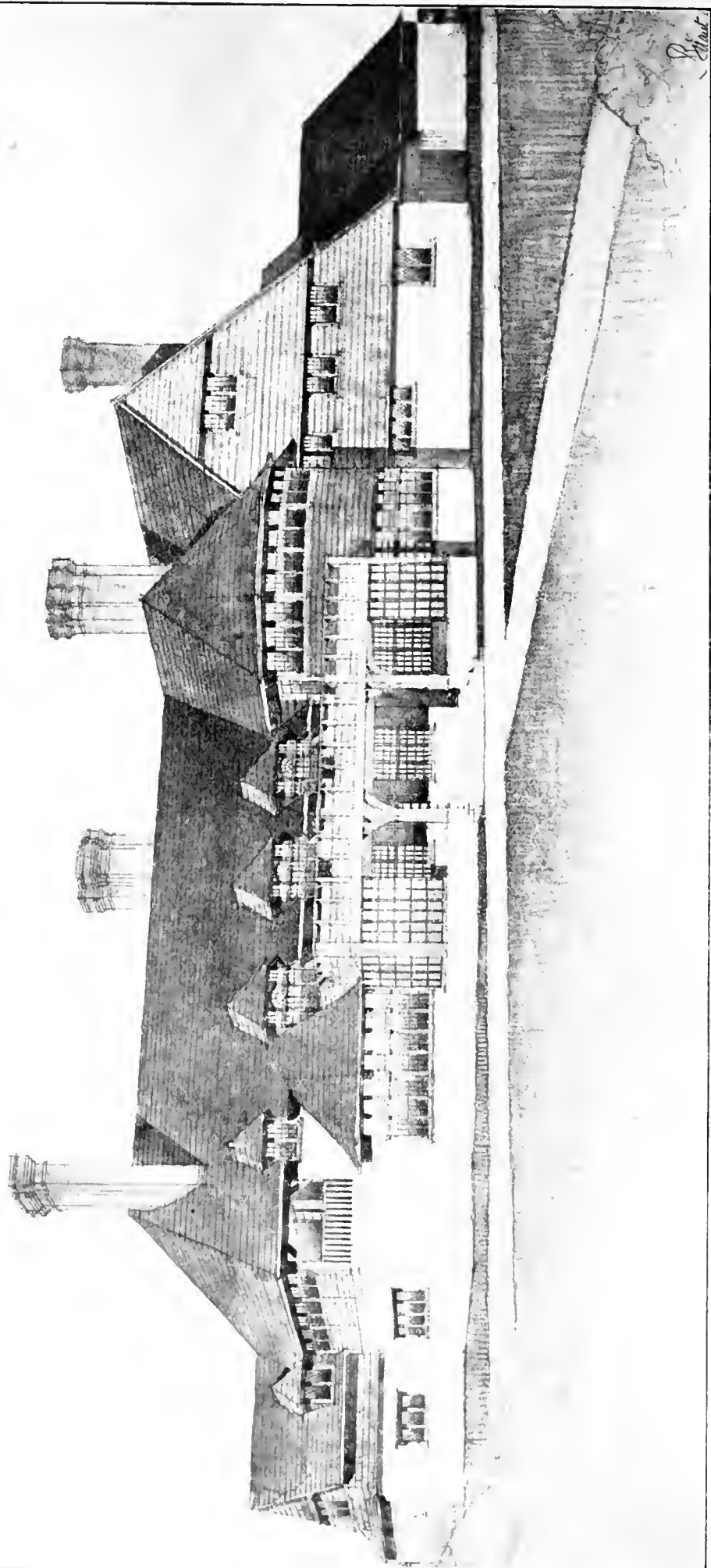
A DINING ROOM MATONED IN BLUE.



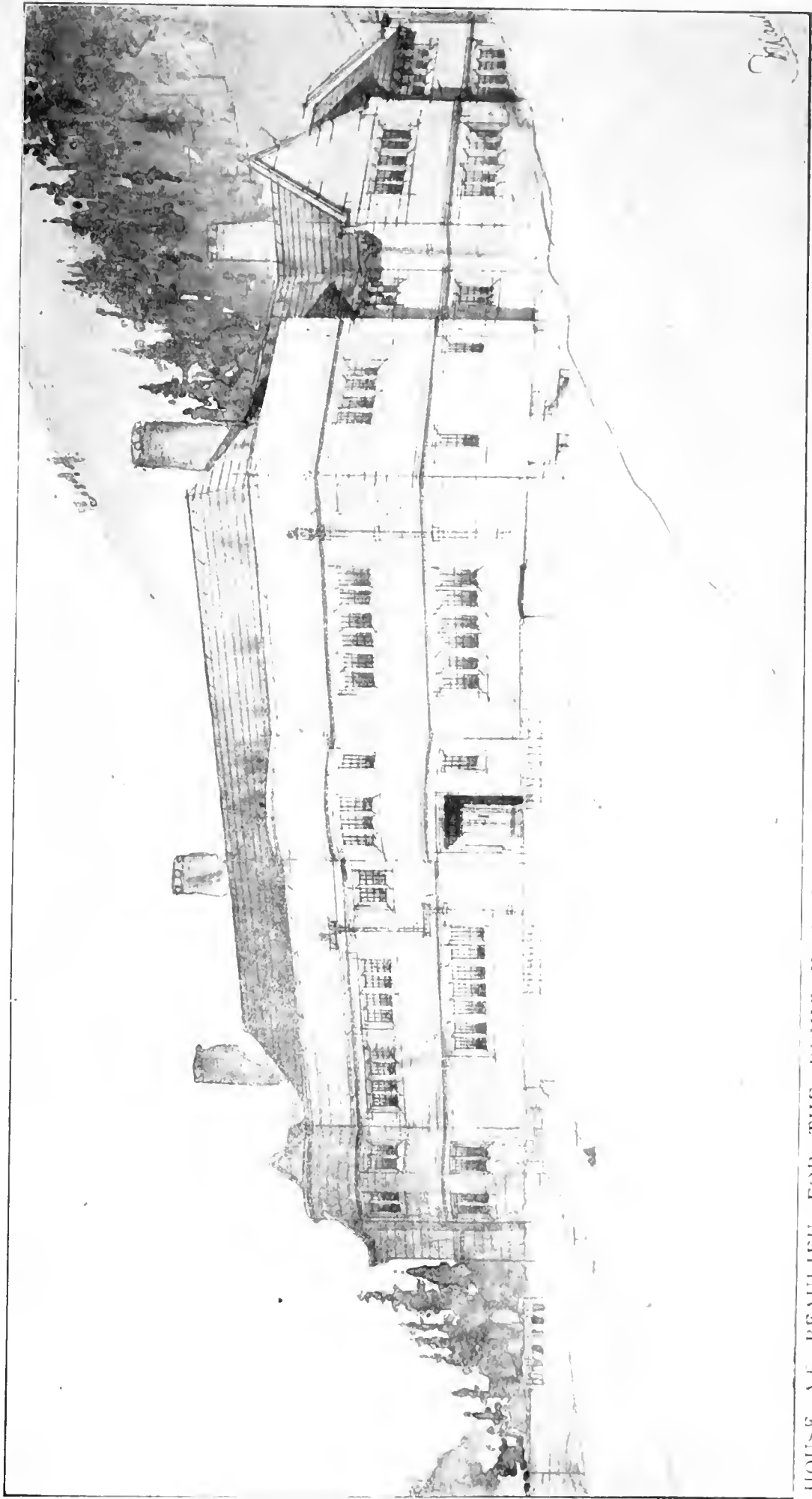
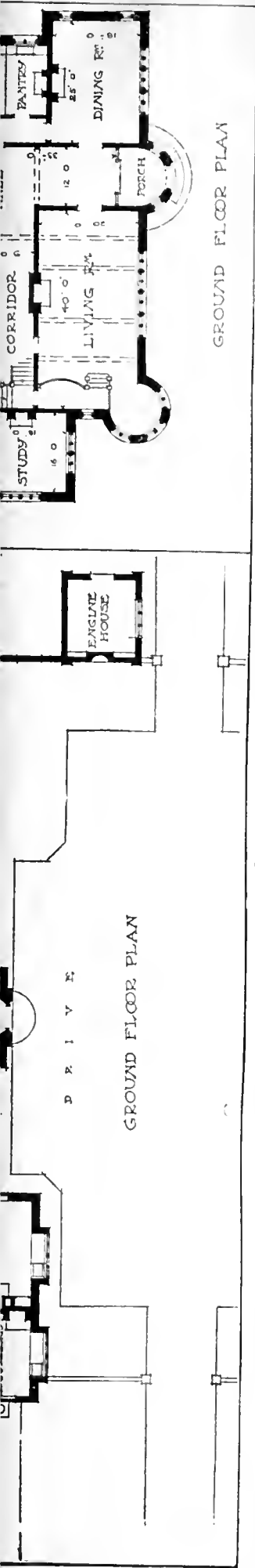
A DRAWING ROOM MATONED IN GREEN AND GOLD.





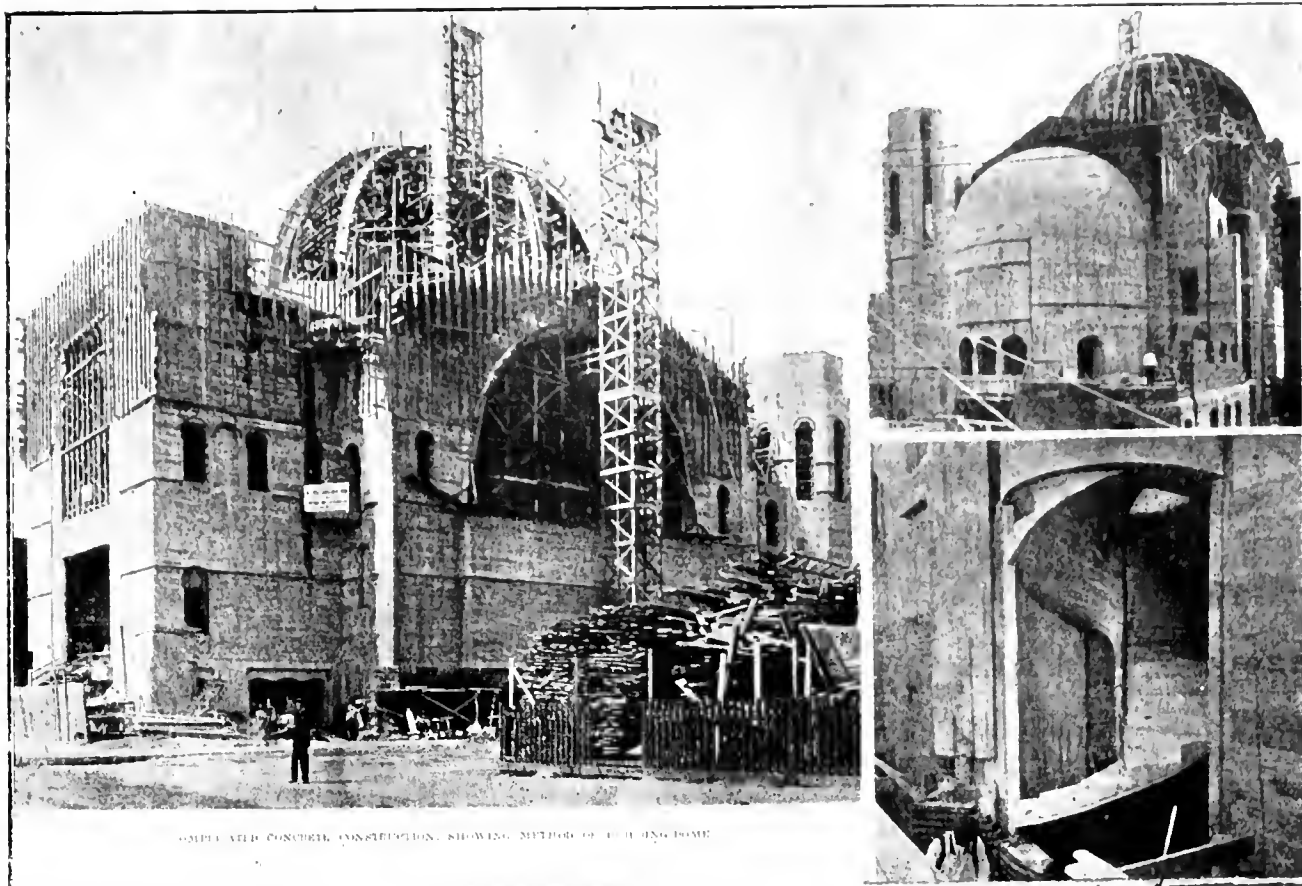




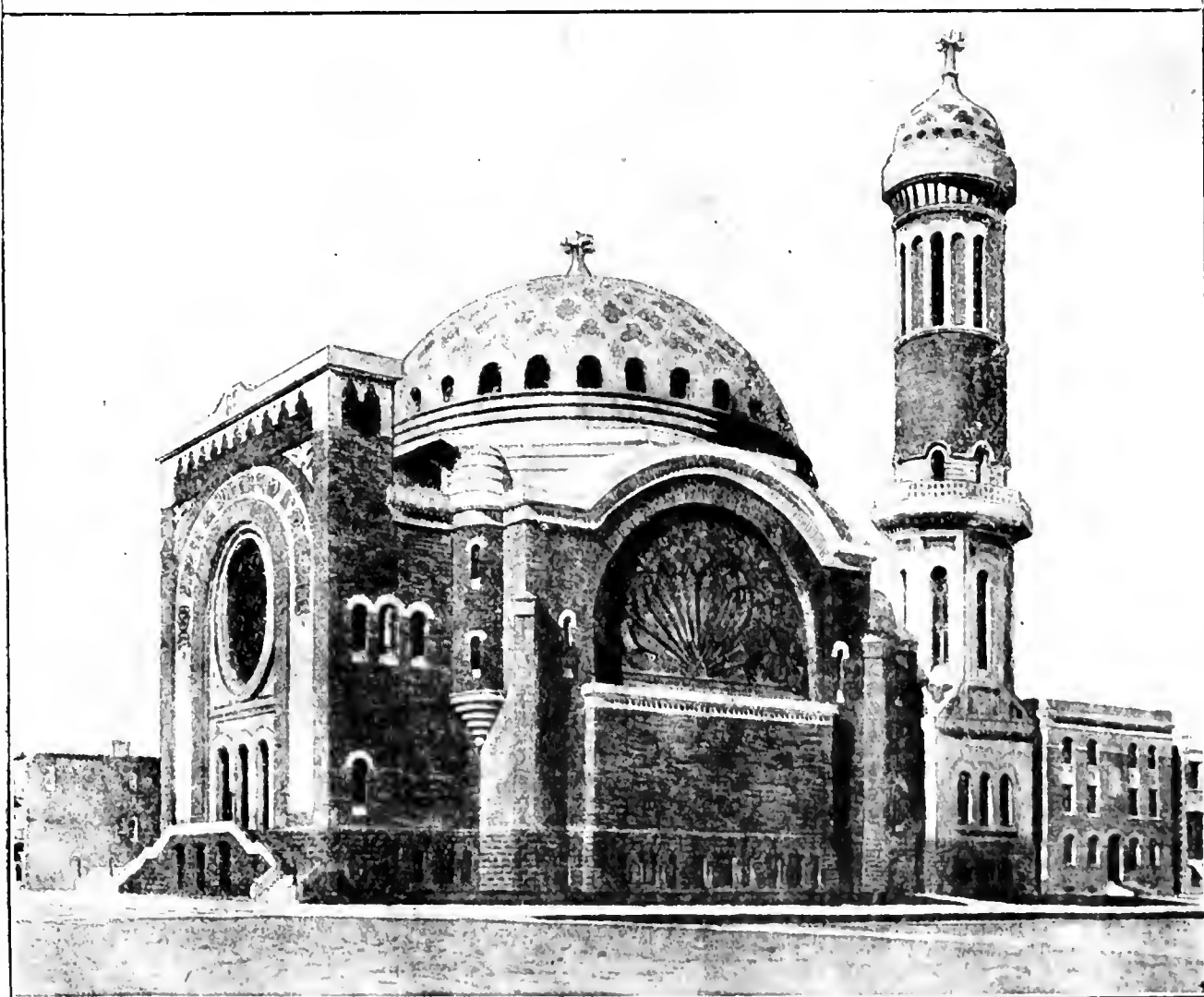


HOUSE AT BEAULIEU FOR THE RIGHT HON. LORD MONTAGU, AND "HACKETT WAY," PORLOCK, SOMERSETSHIRE.  
Messrs. TUBBS, MUSSER and POULTER, Architects.





COMPLETED CONCRETE CONSTRUCTION, SHOWING METHOD OF BUILDING DOME



ST. MICHAEL'S CHURCH (R.C.), MONTREAL. ERECTED IN CONCRETE THROUGHOUT.  
Mr. BEAUGRAND-CHAMPAYNE, Architect.

## Our Illustrations.

### THE SIR WILLIAM PEARCE MEMORIAL INSTITUTE, GOVAN, N.B.

As promised last week, when publishing some particulars of Sir R. Rowand Anderson's various buildings and a list of those represented by the exhibition at the Royal Institute of British Architects, we now give two views of this very picturesque and characteristic building, as shown by some fine photographs sent us for the purpose of publication in connection with the presentation of the Royal Gold Medal this year. Sir Rowand Anderson was too unwell to attend personally, and the Lord Provost of Edinburgh came up to London on his behalf to receive the medal. In consequence of this illness we have been unable to obtain any particulars from the architect up to the time of going to press. We may take occasion, however, to mention one little matter which has not been referred to elsewhere, and that is the publication by Sir Rowand Anderson of a very capital book of geometrical drawings and sketches in 1862, under the title of "Examples of the Municipal, Commercial, and Street Architecture of France and Italy from the 12th to 15th Centuries" (4to, London).

### NEW CHURCH OF ST. LUKE, WALSALL.

The accommodation provided by this proposed church will be for rather over 500. The nave has short north and south aisles, with a choir of three bays, flanked by chapels on either side. The internal facing is to be of local limestone. We give a reproduction of the drawing now at the Royal Academy Exhibition showing the church from the north-west. Mr. Temple Moore, F.R.I.B.A., is the architect.

### A DRAWING-ROOM AND DINING-ROOM DECORATED IN MATONE.

We give two illustrations: one of a West-End drawing-room with walls in Matone many green and empire green; and the other of an "Elizabethan" dining-room in richly-toned oak, with walls in Matone cerulean blue—an admirable foil to the peculiar bronzy tone of oak furniture, and an excellent background for pictures.

### HOUSE AT BEAULIEU FOR THE RT. HON. LORD MONTAGU.

All the materials used in this building, where possible, were obtained from Lord Montagu's estate at Beaulieu. The oak and elm were specially cut for this house, and worked, as far as practicable, on the spot into the floor-boards, window-frames, and joinery. The bricks all came from Lord Montagu's local kilns—a buff colour being chosen for the walling where not covered by elm boards. Narrow mottled-grey bricks are used in the chimneys, the roofs being covered with old tiles gathered from sheds and barns in the neighbourhood. Old paneling has been fitted to the best rooms, and all the constructional oak timbers show internally. The fireplaces are of brickwork, with wrought-iron bars made by a local smith. The windows have iron casements and leaded lights. Hot water is carried to all the bedrooms, and a separate hot sea-water installation is provided to the bathrooms. This work was carried out by Messrs. Potterton, of Baltham. The drawing, from the Royal Academy, is by Mr. Briant A. Poulter. The architects are Messrs. Tubbs, Messer, and Poulter, Craig's Court House, Whitehall, S.W.

### "HACKETT WAY," PORLOCK, SOMERSETSHIRE.

This country house, from the designs of Messrs. Tubbs, Messer, and Poulter, has been built of local red sandstone. The woodwork is oak, but parts of the house are in stained deal. Lead glazing is employed in iron casements. Fireplaces are constructed of local stone, and rough sand-faced plaster finishes the walls internally. The terrace and stabling walls are of local red sandstone. The builder is Mr. Hurford, of Minehead. The drawing, now reproduced, is by Mr. Briant A. Poulter. We give plans of this and the other house with the views.

### REBUILDING OF NO. 10, SALISBURY SQUARE, E.C.

This building is to replace the old premises now occupying the site. The materials are soft red facing bricks, with dark dressings, with special tiling for the roof slopes; the stone to the windows will be in best brown Portland. The casements will be in bronze, with fire-resisting glazing made up in varying thicknesses to imitate leaded glazing. The interiors will be quietly treated on the upper floors, which are devoted to offices. The ground floor and the three basements will be internally faced with tiling to match the other parts of the premises. There will be a glass covered way at the side with a decorative title screen in front of same towards Salisbury Square connecting up the portions of the premises now in use with the new building. This building forms part of the extensive additions made during the last three or four years to the premises of the United Newspapers, Ltd., and the drawing reproduced was hung at last year's Royal Academy exhibition. The architects are Messrs. Castle and Warren, Amberley House, Norfolk Street, W.C.

### ST. MICHAEL'S R.C. CHURCH, MONTREAL, CANADA.

This strikingly-designed building is built in concrete, and has been designed by Mr. A. Beaugrand-Champagne, the contractors being the Atlas Construction Company. The cost has been about £50,000. The reinforced concrete is faced with brickwork and stone "trim," as they say in Canada. The dome, 75 ft. 6 ins. wide, is 37 ft. high, and is entirely of concrete. It is carried from four points, and the entire weight of the cupola and concrete roof rests wholly upon arches and walls. There are no detached pillars inside. The patternings on the dome are obtained with coloured cement concrete. The main floor is carried by long-span concrete beams, 52 ft. span from post to post, as referred to later on. The outside dimensions of the church are 170 ft. by 90 ft. The inside measures 120 ft. by 84 ft. The height of the tower is 182 ft. from the groundline. The structure, in its entirety, is specially interesting as an application of concrete to monumental building, and the treatment architecturally aims at an adaptation of the Byzantine style to modern ecclesiastical purposes. The work is structurally very complicated in character. The site is at the corner of St. Urbain and St. Vinteur Streets, in Montreal. The architect carried out all the architectural and engineering details personally, so it only remained for the engineer to verify the stresses in the construction and to check the loads, and he had to provide the necessary steel to be equal with those tensions. No alterations, however, were made in the provisions furnished by the architect, so that the church has been built in strict conformity with his original drawings. It is founded on a rock, and the basement is supported by flat arches, as already mentioned, with a rise of only 30 ins. to the segment or camber. These arches are 18 ft. centre to centre, and are connected with a flat slab 7 ins. thick. The dome rises over four full-centre arches of 52 ft. diameter to each bay, and these arches have abutment piers carried down on to the rock bed of the foundations. The dome is about 118 ft. above the sidewalk, and 110 ft. above the auditorium floor of the church. The exterior walls are covered with Greendale brick, and terracotta is also employed for finishing parts. Coloured waterproof cement forms the finish to the roofs and dome, the latter being finished in 1 in. thick cement, showing green shamrock decorations on a white ground. No mishap occurred during the progress of the building, notwithstanding the rather unusual character of the work and its huge proportions. The workmen and property escaped any serious sort of accident. We give a photograph of the finished work, and a view of the carcass when in process of execution, also two smaller views, including one of a turret stairway, which is all in concrete.

The partnership hitherto subsisting between A. R. Lowther and A. Rigby, architects, at Hull, under the style of Lowther and Rigby, has been dissolved.

### WAYGOOD OTIS, LIMITED.

THE WAR AND THE COMPANY.

The sixteenth ordinary general meeting was held at Cannon Street Hotel on the 21st inst., Mr. Henry C. Walker (chairman of the company) presiding.

The Secretary (Mr. H. W. James) read the notice convening the meeting and the report of the auditors.

The Chairman, in moving the adoption of the report and accounts, said that although the figures of the balance-sheet were disappointing, the result would not be a surprise to shareholders under existing conditions. While the company did not show a profit, they had been able to meet all their difficulties. During a great part of the time under review they had been a controlled establishment under the Defence of the Realm Act. They had been carrying out munition contracts for the Ministry of Munitions and the Admiralty; but their position in relation to that work had not been a fortunate one, as the Government work only required the use of the company's machine shop, which formed a part only of the establishment. Consequently their other departments had suffered considerably because they had been unable to draw supplies from the machine shop as in normal times. It was also impossible to change a factory over from one class of manufacture to another without incurring considerable expense, or to obtain profitable results with new work until a considerable amount had been turned out. They had also had to face considerable difficulties in regard to labour, although they had done their best to assist the Government proposals in the direction of dilution of labour. A large number of their skilled workmen had been called away, either for service in the Army or munition factories, and to fill the vacancies they had employed women, who had had to be trained to do the work, to which they were naturally unaccustomed.

They had met with loss on a number of contracts, some of large amounts, the orders for which were placed with them at pre-war prices, and owing to delay in building work generally these had been hung up and had had to be completed at the advanced costs of labour and material due to the war. There was a profit on trading of £12,287, and after adding dividends on investments, etc., the balance at credit of profit and loss account was £14,534, from which had been deducted various amounts for depreciation, etc., which left a balance of £672. He did not regard the present state of affairs with any apprehension, and when they were able to resume normal business he felt satisfied that they would be able to do so with conspicuous success, and he hoped they would soon be able to pay the arrears of the preference dividend.

Mr. R. Percy Sellon seconded the motion, which was carried unanimously; and the retiring directors, Mr. H. Harmsworth and Mr. H. Cecil Walker, were re-elected.

### OBITUARY.

Mr. Theodore Knolles Green, A.R.I.B.A., of 70, Finsbury Pavement, E.C., died on Friday at his residence, 2, Ellerdale Road, Hampstead. Mr. Green, who was in his eighty-fifth year, was one of the oldest members of the Royal Institute of British Architects, having joined as an Associate as far back as 1861; his place as Senior Associate is now taken by Mr. C. R. Baker King, who was elected the following year. Mr. Green leaves two sons, one of whom, Mr. Percy Green, A.R.I.B.A., of West Hampstead, was associated with him in business. The funeral service took place at Hampstead Parish Church yesterday (Tuesday) afternoon, and the interment followed at Fortune Green Cemetery.

The late Mr. John Reynolds Fox, of Morton, near Gainsborough, builder, left personality amounting to £32,152.

Sir Arthur Evans, President of the Numismatic Society, offers £100, proportionately divided into two prizes, for the best model of a medal to celebrate the great British Naval victory off the Horns Reef.

## Correspondence.

THE LATE MR. R. A. BRIGGS.

To the Editor of THE BUILDING NEWS.

SIR,—In your obituary notice of my brother, R. A. Briggs, there is a small error, which has only just been brought to my notice.

My brother was assistant to Mr. E. C. Lee, but his articles were served in the office of Mr. Gilbert R. Redgrave, who, I remember, was suggested to my father by the late Sir Philip Cunliffe Owen.

I may also mention, in connection with my brother's book on "Pompeian Decoration," that he presented a few years ago his sketches of the decorations in Pompeii, made in 1883-4, to the nation, and that they are now at South Kensington. Since he made the sketches, the colours of the originals have somewhat faded. I was, however, told that my brother's colouring was identical with their appearance at the time.—I am, yours faithfully,

ALBERT E. BRIGGS.

St. Simon's, Jersey.

### THE GOLD MEDAL OF THE R.I.B.A.

SIR,—Your Scots readers must have been highly gratified by the report in the current issue of THE BUILDING NEWS of the proceedings of the R.I.B.A. when on Monday, for the first time, a Scots architect, Sir R. Rowand Anderson, was, in the eleventh hour of his professional career, presented with the Royal Gold Medal.

Personally I am not keen on this form of the recognition of merit. I am rather disposed to agree with the late Wm. Burges when, in speaking some years ago to the Architectural Association, he said a medal did not appeal to him. "An architect, unlike a soldier, cannot wear his medal, nor can he well sell it, and only on the serious loss of dignity and modesty can he exhibit it to his friends."

When medals are presented in recognition of meritorious service it is desirable that those worthy of them in the homeland should take precedence of those in an alien country. A Scots architect died a few weeks ago whose work obviously bears the marks of identification with the matured fruit of an artistic mind—a mind possessed of the rare faculty of giving expression to all the abstract qualities of beauty. I refer to Wm. Leiper, of Glasgow, but no Royal Medal ever came his way.

Ireland also has been neglected. In December last W. H. Lynn died, aged 87. Although one of the greatest masters in the art of planning on a large scale that ever lived, his great abilities failed to find recognition in this direction. The popular practitioner with life before him and a record of extensive work behind him, even though devoid of imagination and inspiration, appears to be not only in the running for the medal, but in the race, with two notable exceptions. G. F. Bodley and J. F. Bentley, both mightily artistic in all they did, were favoured with the coveted honour just as they were dropping into their graves. It will be conceded that commissions, rather than medals, represent the urgent need of the profession to-day, and if the Royal Gold Medal be of any service to the individual members of it, the time to bestow it obviously is when an architect is making headway and giving some definite proof of constructive and artistic ability.

The conditions of present-day practice are very different, comparatively, from those prevailing in the flourishing days of the Royal Gold Medallists. To succeed now in the professional domain of art, the architect must be in constant touch with the "vogue," the sculptor "outspeak" in the treatment of his modelling, the painter "topical" in the selection of his subject. These indications of artistic decadence may be arrested to some extent by a timely and judicious use of medals and other forms of publicly recognising real merit and encouraging its practice.—I am, yours truly,

MALCOLM STARK.

June 23, 1916.

### QUID NUNC IN ARCHITECTURE.

SIR,—On the occasion of the recent presentation of the Royal Gold Medal at Conduit Street, reported in your last issue, Sir Rowand Anderson related an incident (in the address read on his behalf) with regard to the late R. W. Billing, best known for his beautifully illustrated four volumes on "The Baronial Antiquities of Scotland" (1847-52).

The story served to show how the best men of his day, like Edward Blore and Meikle Kemp, were bound hard and fast by precedent. Billing had built a pumping station for Edinburgh waterworks in the form of a Mediaeval castle, and Sir Rowand Anderson, meeting him soon after it was finished, inquired why this station had been made to look like a fortress instead of being given some character suitable to a pumping-house. In reply, Billing, Scotch-like, put another question. "And, pray, how ought a pumping-station to look?" Precedent not ready to hand, incongruity was inevitable. All sorts of similar mistakes were made, of course, and modern country residences assumed a close resemblance to "Baronial Antiquities" à la Billing.

As I came away from the Institute, cogitating over Sir Rowand Anderson's remarks, I was unexpectedly reminded of a small coterie of architects who, about fifty years ago, wearied by this everlasting reference to precedent, determined to evolve something absolutely new, untrammelled by historic types. Bassett Keeling was perhaps its most extreme exponent, and George Truett did some clever things on these lines, though he was restrained by more artistic sense. "Victorian Harris," as he was called, was the most able man of this little party, and one of the most successful buildings of his in this manner happened to be No. 155, New Bond Street, built in 1860. Its architect ambitiously called it an example of "The Stone Order." The job was quite restricted in size, and designed for the china business of Messrs. Phillips. It had an individuality of its own, with an iron shop-front in three arched bays, fitted with roller shutters, then the vogue. The design was thoroughly in scale with itself, being consistent throughout and admirably adapted to its purpose. Consequently, the result still retained its interest, and marked a distinct phase of work much talked of in its day. Certainly it was original with its naturalistic carvings à la Ruskin.

It would be difficult to imagine, however, anything that could be more mad à la propos than the recent transmogrification that has taken place, reducing what is left of Harris's elevation to an utter absurdity. Two new lower stages have been put up, altering the proportions by adopting another scale. The fresh shop-front is puerile, and ill accords with the new first floor, which is colonnaded under a sprawling segmental pediment, supposed to be in the Late Renaissance style, and extending the whole width of the facade, making confusion more confounded. Harris's design was odd and queer, but it was well thought out and harmonious. It was illustrated in his book issued in 1862 under the title of "The Architecture of the Victorian Age." I hold no brief for him or his work. I knew him personally, and he outlived this "Victorian Architecture" fad, about which he published a pamphlet. His best work was a big and much more recent mansion near Stokesay Castle, in Shropshire. His little job in Bond Street deserved a better fate.—Yours, etc.,

F.R.I.B.A.

The building committee of the corporation of Chelmsford have approved plans for new main workshops at Bishop's Hall for the Hoffman Manufacturing Co., Ltd.

The corporation of Ipswich have under consideration an offer of the Carnegie Trustees of a grant of £15,000 for the erection of a central public library in Northgate Street.

Pennsylvania Castle at Portland, including the Norman ruins called Rufus Castle, the Red King's castle of Mr. Thomas Hardy's novel "The Well-Beloved," was sold, by auction, at Dorchester on Wednesday by order of the executors of the late Mr. J. Morrick Head. The property was secured by Mr. T. J. Templeman, of Weymouth, for £5,950.

### COMPETITIONS.

DUBLIN TOWN PLANNING COMPETITION.—Comment having appeared from time to time in the professional Press having reference to the delay which has occurred in adjudicating upon the designs submitted in competition for the prize of £2500 generously offered by the Marquis of Aberdeen during his Viceroyalty, the Royal Institute of the Architects of Ireland desires to make known the steps it has taken to urge upon the promoter to publish the award. The conditions were issued on March 31, 1914, and the time fixed in them for sending in the designs was September 1, 1914. A letter was received by the Hon. Secretary, dated April 9, 1914, drawing attention of the members of the Institute to the competition. A second letter, dated August 12, 1914, was received by the Hon. Secretary, intimating that, owing to the war, the time fixed for sending in the plans was postponed to April, 1915. On January 19, 1915, the Hon. Secretary wrote to Lord Aberdeen asking him to fix the actual date upon which the plans should be sent in. On March 4 a wire was received from Lord Aberdeen saying that the letter must have miscarried, and that he was replying. On March 18, 1915, the competitors received a printed circular, dated March 18, informing them that May 1, 1915, had been definitely fixed as the closing date for the competition. On June 7, 1915, the Hon. Secretary wrote to Lord Aberdeen asking him when the result of the competition would be declared. On June 10 a reply was received stating that two of the three assessors were not available, and that the third was unwilling to act without his colleagues: under the circumstances a further postponement was inevitable; that, if possible, the adjudication would take place in September, 1915, and, if not then, in May or June, 1916. On June 21, 1915, the Hon. Secretary sent Lord Aberdeen a copy of a resolution passed unanimously by the council at their meeting the same day. This resolution suggested that, as the original assessors were not available, Lord Aberdeen should appoint other persons, as provided by the terms of the competition. The council was informed that the competitors had received a letter, dated August 13, 1915, signed by William A. McConnell, Assistant Hon. Secretary of the Civics Institute of Ireland, stating that, at the request of Lord Aberdeen, the Civics Institute had undertaken to look after the details in connection with the competition. On April 19 a letter was sent to Mr. McConnell, Hon. Secretary of the Civics Institute, by the Hon. Secretary asking what steps were being taken for the early adjudication of the competition. Mr. McConnell called on the Hon. Secretary, and said he had cabled to Lord Aberdeen on the subject. On April 20 the Hon. Secretary wrote to Mr. McConnell to ask him whether he had heard from Lord Aberdeen. Mr. McConnell replied verbally that he had received no reply. On June 14, 1916, the Hon. Secretary wrote to Mr. McConnell asking if any further letter had been received from Lord Aberdeen, as the Institute considered that its action in relation to the Dublin town planning competition should be made public. On June 19 a letter was received from Mr. McConnell stating, as we announced last week on p. 612, that it had been definitely settled by Lord Aberdeen to go on with the adjudication, and that the adjudicators commenced their work on Saturday, June 17.

A hostel for train-men is about to be built at Carlisle for the North Eastern Railway Company, from plans by the company's architect, Mr. A. Pollard, of York.

The urban district council of Frimley have decided to carry out the following extensive scheme of highway works:—Improvements to the Maulway, £1,600; Depot Road, £3,150; Cudham Road, £3,683; Frimley Green Road, £2,577; Guildford Road, £1,443; and Mylechett Place Road, £598.

Work of reconstruction has been commenced at the Adelphi Hotel, South Anne Street, Dublin, destroyed during the recent rebellion. Messrs. O'Rafferty and McGahan, Great Strand Street, Dublin, are the contractors, and Mr. T. F. McNamara, Great Brunswick Street, in the same city, is the architect.



## LEGAL INTELLIGENCE.

**A CARDIFF ARBITRATION.**—The arbitrator, Mr. J. E. Sandeman, M.Inst.C.E., has just made his award in the proceedings in which Mr. Louis P. Nott, contractor, of Bristol, claimed from the Cardiff Corporation a total sum of £34,939 for work done and materials supplied in connection with his Llyn On Reservoir contract. Mr. Sandeman awards the contractor £12,361. The Cardiff Corporation is to pay all the costs, including the costs of the award and the cost of the printing. The award leaves it open to the corporation to appeal on certain points of law. The arbitrator accepted the contention of the contractor that there was excessive supervision and unreasonable refusal on the part of the corporation to allow the contractor to use materials which were in accordance with the contract.

**CLOTH FAIR IMPROVEMENT.**—Mr. R. E. Moore, barrister-at-law, the arbitrator appointed by the Local Government Board, sat at the Guildhall, on Thursday, to consider a compensation claim in connection with the Cloth Fair Improvement Scheme. Mr. T. Murray James, C.C., claimed £1,320 (subject to a mortgage of £500) as the value of his freehold interest in 23, Cloth Fair. He was represented by Mr. R. C. Glynn, and Mr. Naldrett appeared for the City Corporation. Expert evidence was heard on both sides, and the inquiry was concluded. The arbitrator will give his award in due course.

**LAND PLOTS AT NEW ANZAC-ON-SEA.—BAILEY V. NEVILLE AND PRISTON V. NEVILLE (CONSOLIDATED).**—In the Chancery Division on Friday, Mr. Justice Younger began the hearing of the test actions of Messrs. Baile and Preston against Mr. Charles William Neville, of the South Coast Land and Resort Company. The plaintiffs and nearly two hundred other competitors were the winners of consolation prizes of freehold plots at New Anzac-on-Sea for the selection of an appropriate name for a building estate of 205 acres at Friar's Bay, between Rottingdean and Newhaven, but the awards were conditional upon their paying three guineas to defray the conveyance fees and stamp duties. They now asked for the return of their money on the ground of alleged fraudulent representations by the defendant as to the value and character of the estate.—Mr. Ernest Pollock, K.C., and Mr. C. A. Bennett appeared for the plaintiffs; and Mr. Clanson, K.C., and Mr. Harry Dobbs for the defendant.—Mr. Clanson said there were fifteen plaintiffs in these actions, which affected some one hundred and eighty or one hundred and ninety persons. Having regard to the fact that the defendant had resold the plots sold to the plaintiffs he would submit to rescission of the contracts, repay plaintiffs their money, and pay their costs. He submitted to the relief asked for. Another action was pending in which the whole matter would be gone into.—Mr. Pollock said the action was based on fraudulent representation, and he claimed on behalf of all the plaintiffs that they were entitled to go anywhere and say that they had been defrauded. He ought not to be deprived of his opportunity of going fully into the matter because the defendant had pleaded guilty to the lesser count.—Mr. Justice Younger held that plaintiffs were entitled to go on with their actions, whereupon the defendant, without withdrawing his defence, withdrew from the case.—Mr. Pollock proceeding to open the actions, said the plaintiffs were told they were getting "splendid freehold plots" on a "magnificent estate, suitable for immediate building," whereas, as a matter of fact, the estate was agricultural land with no roads, water, or drains. The object of representing that only fifty plots would be "given away," whereas 2,445 were actually awarded, must have been a sinister one. The representation that the estate had a frontage to the sea was utterly untrue. Each of the plaintiffs were informed that they had been awarded as a consolation prize a plot, of which a free conveyance would be made on payment of £3 3s., to include the stamp. The amount of the stamp eventually appeared to be 6d., representing a value not exceeding £5.—The defendant had admitted in his answers to interrogatories that instead of 50 he had awarded 2,445 of these consolation prizes. The size of the plots was to be 25 ft. by 100 ft. in depth.

One of the plaintiffs, William H. Matthews, better known as "King George," which led Mr. Justice Younger to remark that he would like to know the names sent in by those that had lost. Two other plaintiffs were called. Mr. Justice Younger intimated that he would give judgment to-day (Wednesday).

## Building Intelligence.

**OTTAWA.**—Sir George Foster, the Canadian Minister of Trade and Commerce, gave on Saturday some particulars regarding the new Parliament buildings at Ottawa, which are to take the place of those destroyed by fire. The approximate cost is £1,000,000, and it is estimated they will take two years to construct. The walls of the old building, said Sir George, were not injured in any way by the fire, and they will all remain in the reconstructed building. An additional story will be added, the style of architecture not being changed. The new House of Commons will be erected on the west side of the original buildings, and the new Senate Chamber on the east side, and these will be joined by a central corridor, which will be the distinguishing feature of the new construction when completed. The library will remain as before, but it is too small for future needs, and additional space will have to be had for library accommodation. At present, however, it is not decided to enlarge the old library, which is complete in itself. The contract for the building has been taken by Messrs. P. Lyall and Sons' Construction Co., Montreal, at approximately \$6,000,000.

**RINGSBEND.**—On Sunday, the 18th inst., the most Rev. Dr. Donnelly, Bishop of Canea, blessed the new chime of five bells at St. Patrick's Church, Ringsend. The bells were cast by Mr. Matthew O'Byrne, of the Fountain Head Bell Foundry, James's Street, Dublin; they weigh 66 cwt. and cost £640. The tenor will be used as the church bell, and on it the hours will be struck by the clock. The Westminster quarters will be chimed on the others. They will be hung on O'Byrne's rotary system. St. Patrick's Church is Gothic in design and built of Irish granite. Its tower is 75 ft. in height, and the spire stands 150 ft. high. The nave is 125 ft. in length. The sanctuary has one high altar made by Mr. George Smyth, and two side altars by Mr. Edmund Sharp. The organ gallery is over the nave entrance. The church is lighted by many coloured glass windows, and will seat 800 persons. Messrs. W. H. Byrne and Sons are the architects; Messrs. W. Conolly and Sons, the builders; Messrs. T. and C. Martin made the furniture, and Messrs. C. McGloughlin the metal work.

## PROFESSIONAL AND TRADE SOCIETIES.

**EFFECT OF WAR ON EDINBURGH HOUSING.**—The annual meeting and congress of the Sanitary Inspectors' Association of Scotland took place at Perth, when the members were accorded a civic welcome by Lord Provost Scott. At the meeting of the Western Branch, Mr. W. R. Nicol, Wishaw, and Mr. W. Asher, Perth, were appointed chairman and vice-chairman respectively. At the annual meeting of the Association Mr. John Barker, Dumfries, was appointed president, and Mr. W. Weir, Rutherglen, and Mr. W. Beattie, Elginshire, vice-presidents. Two papers were read at the afternoon sederunt, one on the housing of the working classes by Mr. Peter Fyfe, chief sanitary inspector, Glasgow, and the other on water supplies by Mr. W. Asher, Perth. In the course of the discussion on the housing problem, Mr. A. W. Ritchie, chief sanitary inspector, Edinburgh, said that since the war began housing in Edinburgh had undergone several interesting developments. On the lower scale common lodging-houses had been adversely affected by the enlistment of the younger men, and by the employment of the older men at the erection elsewhere of new munition works. By this and other causes five common lodging-houses had been closed, and the total number of lodgers had fallen from 2,424 to 1,294. At a rather higher level of the social scale a reduction of population had taken place by the withdrawal from the city of large numbers of male students attending the Universities and colleges. In another class the population had been increased greatly, and this brought about a shortage of working-class houses.

## STATUES AND MEMORIALS.

**YORK MINSTER.**—A memorial was unveiled by the Marquis of Zetland in York Minster the other day to the late Rear-Admiral Sir C. G. F. M. Cradock, K.C.M.G., C.B., whose ship, the "Good Hope," was sunk off Coronel early in the war and who was a native of Yorkshire. The memorial is placed underneath the clock by the gates leading into the north aisle of the choir. It is of pure Derbyshire marble, 12 ft. 6 ins. in height, and 6 ft. 6 ins. wide. Underneath the pediment, which is carried by pilasters and an embattlement in low relief, is a shield bearing the late Admiral's coat of arms and the motto, "Nec temere, nec timide." On the centre of the memorial is a bust of Admiral Cradock in Saravazzi marble. The side niches are divided from the central panel by broad pilasters of alabaster, and are filled by bronze-gilt figures of Loyalty and Courage. Below is a marble tablet, on which is an inscription. The sculptor is Mr. F. W. Pomeroy, A.R.A.

## WATER SUPPLY AND SANITARY MATTERS.

**ABERDEEN WATER SUPPLY.**—The problem of the increased water supply needed at Aberdeen and the best means to obtain it has been solved by the passing of the Aberdeen Corporation Water Order Compensation Act, which has just received the Royal assent. The existing water-works were designed and carried out in 1862 by the late Mr. James Simpson, C.E. Several schemes were proposed by various engineers for the augmentation of the supply, but the one which has received Parliamentary sanction is that devised by Mr. C. H. Roberts, M.I.C.E., water engineer to the corporation, and Mr. C. P. Hogg, M.Inst.C.E., for taking an increased supply from the River Dee about two miles above Banchory, with aqueducts in a line with the existing one.

## MEETINGS FOR THE ENSUING WEEK.

**THURSDAY (To-morrow).**—Institution of Municipal and County Engineers. Annual Meeting at Blackpool, 10.30 a.m.; Reading and Discussion of Papers, 2 p.m. Lecture on "Transport Reform," by A. E. Galtie, 7 p.m.

Royal Society of Arts. "The Sikhs," by Sirdar Daljit Singh, C.S.I. 4.30 p.m.

**FRIDAY (June 30).**—Institution of Municipal and County Engineers. Annual Meeting at Blackpool: Second day. Reading and Discussion of Papers, 10 a.m.; Visit to Harbour, 2 p.m.; Annual Dinner at Hotel Metropole, 7.15 p.m.

**SATURDAY (July 1).**—Institution of Municipal and County Engineers. Annual Meeting at Blackpool: Third day. Visits to the Garden City at Cleveleys, and to Public Works at Fleetwood, Morecambe, and Lancaster.

Edinburgh Architectural Association. Annual Excursion to Perth and Seone. Leave Waverley Station 10.10 a.m.

Institution of Municipal Engineers. Visit to Windsor Waterworks at Eton. From river landing place, 2 p.m.

Association of Managers of Sewage Disposal Works. Annual Summer Conference at Sheffield. 10.45 a.m.

The Brentwood Urban District Council have increased the salary of Mr. A. J. Meeson, their surveyor and sanitary inspector, from £185 to £195 a year. Mr. Meeson has held his present position for eleven years.

A Local Government Board inquiry has been held at Oxted into an application by the Godstone Rural District Council for sanction to borrow £650 for the construction of a secondary bacteria bed at the Limsfield and Oxted sewage disposal works.

At Sheffield a Local Government Board inquiry will be held by Mr. S. L. Pepler on Wednesday, July 26, into an application by the Corporation for authority to prepare town-planning schemes with reference to certain areas within the city.

The death after a short illness is reported of Mr. J. G. Forsythe, who has been chief assistant sanitary inspector to the urban district council of Leytonstone since 1901. He was previously, from 1897 till 1901, district sanitary inspector under the Corporation of Sunderland.

According to information received from the Minister of the Interior at Ottawa, the contractors for the Quebec Government are preparing to proceed with the construction of a dam on the St. Maurice River, in Quebec Province. The dam will create a reservoir of approximately 300 square miles.



## Our Office Table.

It is proposed to entertain Sir R. Rowand Anderson, LL.D., R.S.A., to luncheon on the occasion of his being the recipient of the Royal Gold Medal of the Royal Institute of British Architects. The luncheon will take place in the Caledonian Station Hotel, Princes Street, Edinburgh, to-morrow (Thursday) at 1.15 p.m. An address of congratulation will be presented to Sir Rowand Anderson on behalf of the four architectural societies in Scotland, by Sir John Burnet, LL.D. As the matter is being enthusiastically taken up by the various bodies and the accommodation is limited, early application is necessary to prevent disappointment. Tickets, price 6s. each, may be obtained from Messrs. R. Grant and Son, 107, Princes Street, or from the hon. secretary, Mr. James Kerr, 122, George Street.

The thirty-fourth annual conference of the National Federation of Property Owners and Ratepayers was held on Friday at Liverpool. The president, Mr. M. Cheverton Brown, of Hull, in his address, said it was not surprising that houses grew scarcer when land and houses had been singled out from all other securities for penalisation in the way of taxation. He moved a resolution urging that in order to restore confidence in the real estate market legislative enactments, which had in the past created difficulties and hampered building operations, should be amended or, if necessary, repealed, and private enterprise be again afforded every possible support and encouragement to continue to provide housing accommodation for people, in conjunction with other agencies who had hitherto undertaken this work. Mr. E. Russell Taylor, of Liverpool, seconded, and Mr. Edwin Evans, of London, supported the motion, which was unanimously carried. It was decided that the next conference should be held in London in January.

"The Portrait Studio," by "Practicus" (London, Henry Greenwood and Co., Ltd., 24, Wellington Street, W.C., 6d.) is the outcome of the writer's experience in connection with the *British Journal of Photography*, prompted by the problems and difficulties suggested to practical photographers. That experience has certainly been well utilised. The booklet deals practically with the choice of site of a studio and its design, and illustrates lucidly the various fittings likely to secure success.

By order of the Ministry of Munitions, all work has been stopped on the new offices of the Metropolitan Water Board, now in course of erection from Mr. Austen Hall's plans, in Rosebery Avenue. The order dates from last Saturday, and nearly 200 men are affected. The new building was being erected by Messrs. Rice and Sons, of Stockwell, and had reached the second floor. A few men are still engaged on the works, but these are protecting the unfinished walls against wind and weather until such time as building can be resumed.

## TRADE NOTES.

Boyle's latest patent "Air-Pump" ventilators have been applied to Goldthorpe New Church, Goldthorpe.

The Picture Palace, Beverley, is being supplied with Shorland's special inlet ventilators by Messrs. E. H. Shorland and Brother, Ltd., of Failsworth, Manchester.

Messrs. Spalding and Myers, architects and surveyors, have removed their offices from King Street, Cheapside, to 12, New Court, Carey Street, Lincoln's Inn, W.C. Their new telephone number is Central 660.

In tropical and other hot climates the heat affects many building materials, so that those products which are most admirable in a temperate climate often become total failures. Portland cement is, however, unaffected by any weather, and is safe in all climates. The Executive Engineer of the Dacca (India) University Division has expressed his satisfaction with the cement damp-courses used in the new Secretariat and the new Mohammedan College at Dacca. We understand that Pudlo was used in both structures to waterproof the cement.

## CHIPS.

Messrs. Woolworth and Co. are having new bazaar buildings erected at Aberdeen. The building contract has been taken by Mr. J. L. Rosser, of Neville Street, Aberdeen.

The corporation of Oswestry have adopted a proposal for the widening of Whittington Road, including the purchase of the additional land required under the scheme.

The Hornsea Urban District Council have decided to put down a borehole of a depth of 150 ft., owing to the increased population, and the demand for an additional supply of water.

Mr. Walton Ingham Sutcliffe, of Wyngarth, King's Road, Colwyn Bay, cement manufacturer, who died on March 14, left estate of the gross value of £19,361, of which £18,295 is net personalty.

Alterations and additions to premises in Spring Gardens, Aberdeen, are about to be carried out for Messrs. W. McKinnon and Co., Ltd., engineers, of that city, from plans by Mr. George Cutts, architect, of Aberdeen.

The Bombay Municipal Corporation have reappointed Mr. H. J. Trivess Smith as hydraulic engineer to the municipality for a further term of five years from June 7, 1916, at a salary of Rs. 1,800 per annum.

The urban district council of Rhyl has decided to proceed at once with the planting of a special grass on the sea hills, in order to arrest the great sand-drift which has taken place, and the removal of which is now being carried out at a cost of £700.

At a recent meeting, held in Albany, N.Y., there was organised the Albany Architects and Engineers' Association. The officers are:—President, Mr. Marshall L. Emery; Vice-President, Mr. William R. Davis; Secretary-Treasurer, Mr. Charles V. Merrick.

The Riddell Hostel, Stranmillis Road, Belfast, in connection with the Queen's University, is almost completed. The building work has been carried out by Messrs. Henry Laverty and Sons, Cambridge Street, Belfast, and the architect is Mr. R. Mills Close, architect to the University.

Mr. A. G. Drury held a Local Government Board inquiry at Chertsey on Wednesday last into an application from the urban district council for leave to borrow £14,000 for works of sewage disposal. The plans had been prepared by Mr. F. W. Greig, surveyor to the urban council.

Owing to scarcity of men the Hampshire County Council are employing women as sweepers to assist the tarring gangs on the main roads. The women are reported to be giving satisfaction. The Frome Rural District Council is also trying the experiment of employing women to sweep the roads preparatory to tar-spraying.

The corporation of Lancaster have adopted a plan for the widening of Caton Road. A tarred macadam roadway will be formed forthwith, the portion between Bridge End and Caton Road to be 60 ft. wide, and the portion of the road beyond to be widened to 50 ft. as far as the aqueduct. The cost is estimated at £12,000.

The Lord Provost's Committee of the Edinburgh Town Council accepted last week a tender from Messrs. James Millar and Son, Edinburgh, for the removal of the Alexander and Bucephalus group in St. Andrew Square to the quadrangle of the Council Chambers. The work will be proceeded with immediately so as to allow of operations for the placing of the Gladstone memorial on the site vacated.

Business is brisk among builders at Vancouver, British Columbia. There were thirty-eight building permits issued in the city during April, 1916, representing a value of \$64,605.00, as compared with eighty-six for April, 1915, representing a value of \$31,754.00. The total number of permits issued for the first four months of this year was 125, value \$358,350.00, while for the same period last year there were 278, representing a value of \$302,791.00.

A controversy as to the relative wearing qualities of chert and granite has arisen between the county council of Devonshire and Tiverton Rural District Council. Mr. Ascock, the county surveyor, wrote to Mr. A. J. Milden, surveyor to the rural council in question, that he regards granite as much superior to chert for road making purposes. The surveyor, backed up by the chairman and some members of the rural council, consider that chert lasts longer than limestone, and does not produce so much dust. Chert is undoubtedly cheaper than granite, but it will not withstand anything like the same strain of wear and tear under traffic.

At York new offices are about to be built for the Royal Engineer Corps. The contractor is Mr. A. Robinson, of Idle, near Bradford.

The architect for the reconstruction of the parish church of Wargrave, burnt down by Suffragettes on Whit Sunday, 1914, was Mr. George H. Fellowes Pryme, F.R.I.B.A.

The Public Works Loan Department have sanctioned an advance to the County Council of Fifehire of £21,247 for the initial works in connection with the Glen Lomond Sanatorium scheme.

The *Lt. Journal* announces that the following three members of the Association who are on active service have recently been wounded: J. R. Truelove, London Regiment; Lieut. K. J. Young, Royal Engineers; and Second-Lieut. F. Dangerfield, East Kent Regiment.

The new Roman Catholic Church in Copenhagen Street, West Islington, was opened on Saturday free from debt. It will be known as the Church of the Blessed Sacrament, and, together with the adjoining sacristy, occupies a site valued at £7,000, and given by Mr. J. J. Hicks.

The Aberdeen Town Council have authorised their water engineer, Mr. C. H. Roberts, to proceed with the detailed surveys and the preparation of the working plans and specifications in connection with the construction of a new aqueduct and relative works, so as to be ready to proceed with the scheme after the war.

The foundation-stone of a new Roman Catholic church was laid by Bishop McNaughton on the 15th inst. at Keenagh, near Crossmolina. The edifice will be Romanesque in style, and will occupy an area of 90 ft. by 30 ft. It will be constructed of limestone, excavated on and near the site. Mr. W. H. Byrne, of Suffolk Street, Dublin, is the architect, and Mr. Isaac Beckett, of Ballina, the builder.

Mr. W. D. Caroe, F.S.A., suggests that the highway bridge to be built instead of Charing Cross Railway Bridge shall have equestrian statues of Lord Kitchener and Lord Roberts on either side of its entrance from the Middlesex end, and shall be named "Kitchener bridge." Very good; but first let the South-Eastern and Chatham Bill for strengthening and rendering still more hideous the present structure be rejected by the House of Commons.

At a Wardmote of Coleman Street Ward, on Monday, the closing of a passage known as White's Alley, between Moorgate Street and Coleman Street, by the rebuilding of an insurance office, was sanctioned. The proposal was opposed by Mr. M. Saunders and Mr. F. Tomkinson, who pointed out that the passage had been in existence for centuries. It was suggested that the plan of the new building might be made to include an arched way between the streets in place of the alley.

The painting by Mr. Seymour Lucas, R.A., representing the flight from the House of Commons in 1642 of John Hampden and four other members to avoid seizure by Charles I., which was presented to the House by Mr. Alfred Bird, M.P. for West Wolverhampton, has now been placed on one of the walls of St. Stephen's Hall. The picture by Mr. A. C. Gow, R.A., representing the scene on March 2, 1628, when Mr. Speaker Finch was forced back into his chair when he had risen to adjourn the House, has been hung on the opposite wall.

Messrs. J. and W. Stewart, Ltd., have secured the contract for rebuilding Messrs. Manfield's premises at the corner of Middle Abbey Street and Sackville Street, Dublin, burnt out by the Sun Fireins. The building is to be in every respect similar to the one destroyed, which was built of Rualon brick and terra-cotta dressings. Messrs. Batchelor and Hicks, Merrion Square, Dublin, the architects for the original building, are also responsible for the reconstruction of the premises.

In moving, at Wednesday's meeting of the Tynemouth Town Council, the adoption of the Health Committee's report on overcrowding in the borough, Mr. J. H. Tobbs said that the borough surveyor had been requested to make inquiries in neighbouring boroughs as to what action they contemplated for providing accommodation for munition workers. The state of things was getting exceedingly serious. The probability was that at the close of the war the price of material would still be very high, and the cost of money would be high also. They would, therefore, not be able for some years to improve the conditions without expending a much larger amount than they would have spent if they had gone on with the work when they should have done.

The death is announced of Mr. David Johnstone, head of the firm of Johnstone and Clark, engineers and bridge builders, Dumfries.

A new Episcopal cathedral for the Chicago diocese will probably be erected in the near future at a cost of about \$250,000.

At a meeting of the Royal Society of Portrait Painters, held at the Grafton Galleries on Friday, Messrs. Alfred Priest, James Quinn, and Frank Salisbury were elected members of the Society.

Messrs. James Smith and Son, builders, Junction Works, South Norwood, are proceeding with their contract for the erection of Army Pensions Buildings in the grounds of Chelsea Hospital.

The corporation of Bolton have requested the Local Government Board to allow their housing scheme to proceed forthwith, on account of the serious state of overcrowding in the town and district.

Mr. Samuel is to be asked in the House whether he intends to prevent electric light companies increasing the price to consumers to compensate themselves for loss caused by the operation of summer time.

The corporation of Richmond, North Riding, have approved of the scheme for a new road from Hipswell to Richmond, as proposed by the Road Board and the War Office. The corporation will pay £1,700 towards the total cost, estimated at £7,000.

Mr. Lawrence Carr Ferrey, Private, Canadian Infantry Pioneers Regiment, youngest son of the late B. Edmund Ferrey, F.R.I.B.A., F.S.A., and grandson of the late Benjamin Ferrey, F.R.I.B.A., died at Aberdeen on the 16th inst. of wounds received while on active service, aged 25.

An Adam mansion, 25, Portland Place, is in the market, owing to the recent death of Sir James Goodhart, the well-known medical practitioner. It was built by the Brothers Adams for the occupation of Robert, one of the brothers, and its main characteristics have been carefully maintained, the original decorations being in a wonderful state of preservation.

Mr. Bernard Robinson Hebblethwaite, A.R.I.B.A., late of Dublin, has been promoted Captain in the Royal Army Medical Corps. Captain Hebblethwaite, who was engaged in a Dublin architect's office at the time, enlisted at the outbreak of the war, and served in France since December, 1914, to January, 1916, since when he has been stationed in Egypt with the Sanitary Companies of the R.A.M.C.

The Scottish Modern Arts Association have just added four works to their collection of modern Scottish paintings, viz.: "Winter Sunshine," by Archibald Kay, A.R.S.A., and a portrait of the artist himself, by Alexander Ritchie, R.S.A.; these two pictures can now be seen in the Royal Scottish Academy's Ninetieth Exhibition; and also "The Smile" and "The Question," two portrait studies by the late James Torrance.

The contract the Peter Lyall and Sons Construction Company have received in connection with the reconstruction of the Parliament Buildings at Ottawa covers the building of the main walls and certain other work, the total estimate for which is about two million dollars. The company is to be paid 8 per cent. on the actual cost of the operation. For the inside of the buildings, such as the construction of the chambers, plumbing, heating, painting, and decoration, competitive bids will be asked.

At the last meeting of the Museum and Art Gallery Committee of the Birmingham City Council five drawings by John Ruskin, which originally belonged to the late Town Clerk (Mr. Orford Smith), and have been purchased by members of the corporation, were accepted for the Art Gallery. They comprised "The Matterhorn," "Carnopied Sarcophagus of Verona," "Sculptured Column at Lucca," "Alpine Scene," and "Bridge with Mountain Torrent." These gifts form a valuable addition to the collection of drawings by Ruskin, now twenty-three in number.

At a meeting of the directors of the Canadian Trusts and Guarantee Company, Ltd., held recently, it was decided to proceed at once with the erection of a new \$500,000 office building on Bay Street, Toronto. Tenders have already been received, and contracts will be let immediately. Messrs. Curry and Sparling, architects, have designed the building, which will be eight stories in height, including basement, with provision for addition of five more stories at a later date. It will have a footprint of 30 ft. and a depth of 95 ft. The front is to be of grey Indiana limestone, with a Stanstead granite base. The main floor will be finished in French Tavernier marble.

## TO CORRESPONDENTS.

We do not hold ourselves responsible for the opinions of our correspondents. All communications should be drawn up as briefly as possible, as there are many claimants upon the space allotted to correspondents.

It is particularly requested that all drawings and all communications respecting illustrations or literary matter, books for review, etc., should be addressed to the Editor of the BUILDING NEWS, Effingham House, 1, Arundel Street, Strand, W.C., and not to members of the staff by name. Delay is not infrequently otherwise caused. All drawings and other communications are sent at contributors' risks, and the Editor will not undertake to pay for, or be liable for, unsought contributions.

When favouring us with drawings or photographs, architects are asked kindly to state how long the building has been erected. It does neither them nor us much good to illustrate buildings which have been some time executed, except under special circumstances.

"Drawings of selected competition designs, important public and private buildings, details of old and new work, and good sketches are always welcome, and for such no charge is made for insertion. Of more commonplace subjects, small churches, chapels, houses, etc.—we have usually far more sent than we can insert, but are glad to do so when space permits, on mutually advantageous terms, which may be ascertained on application.

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## NOTICE.

Bound copies of Vol. CIX. are now ready, and should be ordered early (price 12s. each, by post 12s. 10d.), as only a limited number are done up. A few bound volumes of Vols. XXXIX., XL., XLVI., XLIX., LIII., LVI., LXII., LXIV., LXV., LXVI., LXVII., LXVIII., LXIX., LXX., LXXI., LXXII., LXXIII., LXXIV., LXXV., LXXVI., LXXVII., LXXVIII., LXXIX., LXXX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., LXXXVI., LXXXVII., LXXXVIII., LXXXIX., XC., XCI., XCII., XCIII., XCIV., XCV., XCVI., XCVII., XCVIII., XCIX., C., CI., CII., CIII., CIV., CV., CVI., CVII., and CVIII. may still be obtained at the same price; all the other bound volumes are out of print.

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Advertisements for the current week must reach the office not later than 3 p.m. on Tuesday. Front-page advertisements and alterations or stop orders for serial advertisements must reach the office by first post on Monday to secure attention.

RECEIVED.—O. P. and F.—J. M. and Co.—E. H. S. and Bro., Ltd.—W. P. T. and Co.—W. and Co.—W. F. S. and Co., Ltd.—H. A. C.—E. D. and Co.—W. K. and Co.

PRACTICUS.—No.

F. R. S. E.—Please send.

L. G. N.—Yes; preferably the detail.

N. P. H.—We know nothing of the firm named, 2. Yes.

Bristol.—Even anonymous mud-slingers like yourself help the revenue with their halfpenny postcards on which they are ashamed to sign their names. Keep it going.

THE ONLY WAY.—Readers, and they are not a few, who complain of being unable to obtain chance copies of this journal at newsagents and book-stalls are assured it is no fault of ours. Month by month the price of paper is still rising, and the difficulty of obtaining it is increasing. Under these circumstances it is impossible for us to supply the trade with overplus copies, or for them to stock them, only to have them left on their hands as returns. The only way to secure regular delivery, therefore, is for readers to subscribe direct to the office, or to place a regular order with their newsagent or book-stall.

## TO ARMS!

### 1st LONDON ENGINEER VOLUNTEERS.

ORDERS FOR THE WEEK, BY LIEUT.-COLONEL

C. B. CLAY, V.D., COMMANDING.

OFFICER FOR THE WEEK.—Platoon Commander J. O. Cheadle. Next for Duty.—Platoon Commander L. C. Hughes-Hallett.

MONDAY, JULY 3.—Technical for Platoon No. 9, 46, Regency Street, S.W. Squad and Platoon Drill, Platoon No. 10. Signalling Class and Recruits.

TUESDAY, JULY 4.—Officers' Instruction Class, 6-1. Recruits, 7-8. Lecture, 7.15. "Constitution and Duties of a Field Company." Company Commander Bentley.

WEDNESDAY, JULY 5.—Platoon Drill, No. 2 Platoon.

THURSDAY, JULY 6.—Platoon Drill, No. 6 Platoon. Recruits, 5.45-7.45. Instructional Class, 5.45.

FRIDAY, JULY 7.—Technical for No. 10 Platoon, 46, Regency Street, S.W. Squad and Platoon Drill, No. 9 Platoon.

SATURDAY, July 8.—Instruction Class, 2.30, Company Commander Fleming.

SUNDAY, JULY 9.—Entrenching at Otford, Parade Victoria (S.E. and C. Ry. Booking Office), 8.35 a.m. Uniform, haversacks, water-bottles. Mid-day rations to be carried. Railway vouchers will be provided.

OTFORD CAMP.—standing camp at Otford. See monthly orders.

MESSKETRY.—For all companies, see notice and Tables A and B at Headquarters.

NOTE.—Unless otherwise indicated, all drill, etc., will take place at Chester House.

By order,

MACLEOD YEARSLEY, Adjutant.

June 26, 1916.

Adjudication made in the case of Mr. Joseph Nicholson Johnston, Hendford, Yeovil, Somerset, architect, has been annulled in the Yeovil County Court, it appearing to the Court that all the debts have been paid in full.

Eastbourne Town Council decided on Monday not to acquire for £11,000 seven acres of land opposite the Convalescent Hospital. Alderman Keay and others advocated the acquisition of the site on the ground that the erection of houses on it would mar the beauty of the front, blot out the view of Beachy Head from part of the front, and prevent the construction of an under-chill drive.

Philip Gordon Cumming, 29, solicitor's clerk, Emily Harriett Dowse, and Joseph Leech, 41, architect and surveyor, were formally remanded by Mr. Hopkins at Bow Street on Monday, for commitment to the Central Criminal Court on charges of perjury and conspiracy to defeat the ends of justice in a suit for divorce brought by Leech against his wife; and Leech further for subornation of perjury. Dowse, who had been unable to find bail, was released on her own recognisances in £50.

Sir Howard Frank (Messrs. Knight, Frank, and Rutley) offered for sale on Thursday in last week, at the Hanover Square Estate Rooms, the Angell estate, in Brixton, Clapham, and Stockwell, by order of Lady Knightley. After ten minutes' brisk bidding, commencing at £50,000, Earl Beauchamp bought the property, as a whole, for trustees, at £60,450. The price, about twenty-seven years' purchase, is satisfactory, since some of the ground-rents are leasehold, and the earliest reversion is not until 1937. The estate has an area, in three detached blocks, of nearly 44 acres, and produces ground-rents of £2,273 a year, secured on over 700 houses and other premises. The present rack-rental value is about £28,700 a year, to which the reversions will accrue between the years 1937 and 1961.





